



Effects of childhood trauma on executive function, impulsivity, rumination and worry: An umbrella review

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ARTICLE INFO

Keywords:

Childhood trauma
Executive function
Impulsivity
Psychopathology
Rumination
Worry

ABSTRACT

Neurocognitive changes in executive function and emotion regulation due to the chronic exposure to stress from childhood trauma can act as transdiagnostic risk factors for the development and maintenance of psychopathology. This pre-registered umbrella review (PROSPERO: CRD42024628582) aimed to identify the strength of the relationships between childhood trauma and modifiable targets (executive function, impulsivity, and perseverative cognition – worry and rumination) to inform strategies to minimize the impact of childhood trauma on health outcomes. Twenty-two systematic reviews and meta-analyses, encompassing 639 unique primary studies, were eligible. Across included reviews, an enduring impact of childhood trauma on these transdiagnostic risk factors was identified. Most reviews ($n = 16$; 73%) focussed on executive function, found a negative association between childhood trauma and cognition. Most consistent evidence was found for executive function domains working memory and processing speed. Importantly, childhood trauma uniquely contributes to these impairments, regardless of clinical status. Fewer reviews considered impulsivity ($n = 2$; 9%) and perseverative cognition ($n = 4$; 18%) but consistently reported positive associations between childhood trauma and these risk factors. Given these associations, interventions ought to target these modifiable factors to disrupt the downstream impacts of childhood trauma. Longitudinal cohort studies aiming to identify the impact of childhood trauma, and trials of interventions to limit the impact of childhood trauma on, and to prevent the development of, psychopathology should be future research priorities.

1. Introduction

Childhood trauma, the experience of traumatic events including abuse and neglect between birth and 18 years (American Psychiatric Association, American Psychiatric Association, 2013), has an estimated prevalence of 29% in the United Kingdom, and 30% worldwide (Allen et al., 2023; Angelakis et al., 2019). Traumatic experiences during childhood have been linked to various adverse physical and mental health outcomes including heart disease and health risk behaviours (Boullier and Blair, 2018; Petrucci et al., 2019), as well as an increased risk for the development of psychopathology and a greater suicide vulnerability later in life (Dube et al., 2001; R. Gilbert et al., 2009; Kessler et al., 2010).

Elucidating possible mechanisms of action between childhood trauma and psychopathology can provide targets for interventions and preventative approaches, as well as enable clinicians to identify maltreated individuals most at risk of developing these conditions. This aligns with shifts in clinical psychology and psychiatry to preventive

models of mental health (e.g., McGorry, 2013).

A number of models have emerged to highlight the mechanisms of action between childhood trauma or adverse childhood experiences and adverse health outcomes later in life. For example, McCrory and Viding's (2015) theory of latent vulnerability stipulates that the experience of childhood trauma can lead to altered neurocognitive systems (e.g., threat detection, reward processing, emotion regulation, and executive function, McCrory et al., 2017), resulting in latent vulnerability to psychopathology. It has been proposed that these cognitive sequelae appear due to the chronic stress exposure as a result of childhood trauma (Schneiderman et al., 2005). The activation of the hypothalamus-pituitary-adrenal (HPA) axis by exposure to traumatic events leads to a physiological stress response, which in turn alters glucocorticoid levels (Gunnar and Quevedo, 2007; D.B. O'Connor et al., 2021a,b). These dysregulated glucocorticoid levels have been associated with different neurodevelopmental trajectories, resulting in abnormal neural functioning (Lupien et al., 2009).

Other models, such as Loyallo's (2013) integrative model, explain

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<https://doi.org/10.1016/j.neubiorev.2026.106818>

Received 9 January 2026; Received in revised form 11 June 2026; Accepted 11 June 2026

Available online 19 June 2026

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the impact of adverse childhood experiences (ACEs), including childhood trauma, on physiological, cognitive, and emotional regulation. The model suggests that childhood trauma can lead to modified frontolimbic brain function which in turn leads to reduced stress reactivity, altered cognition, and unstable affect regulation. Together, these may lead to adverse health outcomes through impulsive and risk-taking behaviour (see [Lovallo et al., 2012, 2013](#)). More recently, [O'Connor et al., \(2018\)](#) and [Rogerson et al., \(2024\)](#) found evidence for these theories in that childhood trauma was associated with a blunted HPA axis activity, poorer executive functioning, and greater impulsivity.

The neurocognitive changes which occur following chronic stress exposure during development can be understood as transdiagnostic risk factors for future psychopathology. Transdiagnostic risk factors can be defined as vulnerability elements which contribute to the development and maintenance of psychopathology and its symptoms ([McEvoy, 2022; McLaughlin et al., 2020](#)). These risk factors are essential neurobiological and psychological processes underlying multiple forms of psychopathology ([Nolen-Hoeksema and Watkins, 2011](#)). Hence, these cognitive impairments and traits can provide researchers and clinicians with valuable information regarding the development and alteration of prevention and intervention programs.

However, the complexity of interactions between different transdiagnostic risk factors leading to psychopathology and suicide risk, has been highlighted. For instance, the stress-diathesis model of suicidal behaviour postulates that risk changes as a function of the interaction between stressors, both internal and external, and diathesis, such as executive function difficulties in the form of impaired decision making, learning and memory deficits ([Mann et al., 1999; Mann and Rizk, 2020](#)). These diatheses can present in the form of cognitive, personality, or biological factors, such as executive function difficulties, higher levels of perseverative cognition (worry and rumination), and impulsivity ([Van Heeringen and Mann, 2014](#)). Other models, like the integrated motivational-volitional (IMV) model of suicidal behaviour, further highlight interactions between risk factors, emphasising the need for the identification of neurodevelopmental influences on these ([R.C. O'Connor and Kirtley, 2018](#)).

As emphasised by the abovementioned theoretical frameworks, executive function deficits have been associated with childhood trauma and vulnerability to psychopathology and suicide independently ([Lovallo, 2013; Mann and Rizk, 2020; R.C. O'Connor and Kirtley, 2018](#)). Executive function has been defined in numerous ways ([Baggetta and Alexander, 2016; Doebel, 2020](#)), but typically as higher-order cognitive processes which underlie goal-directed behaviour, complex problem solving, organisation, and self-serving behaviour. Fundamental executive function domains are inhibition (an individuals' ability to actively suppress inappropriate or automatic responses; [Miyake et al., 2000; Spaniol and Danielsson, 2022](#)), shifting (an individuals' ability to switch between tasks or rules effortlessly, [Miyake et al., 2000](#)), and updating (the ability to modify stored information based on incoming information and its relevance to the task at hand; [Morris and Jones, 1990; Best and Miller, 2010; S. J. Gilbert and Burgess, 2008; Lezak et al., 2004](#)), which includes working memory (an individuals' ability to temporarily hold and manipulate information for use in the immediate future; [Baddeley, 2012](#)). Several reviews have identified a link between executive function impairments and adverse health outcomes ([Allan et al., 2016; Blume and Alan Marlatt, 2009](#)), as well as reviews identifying a link between childhood trauma and executive function difficulties in children ([Johnson et al., 2021; Lund et al., 2020](#)). Nevertheless, executive function measures vary widely in the literature, impacting comparability of results, and there has yet to be a comprehensive review synthesising the evidence of the impact of childhood trauma on executive function alongside other transdiagnostic risk factors.

Impulsivity has been incorporated as a transdiagnostic risk factor in several models linking childhood trauma and psychopathology, such as the IMV model, and can be defined as acting without forethought ([Ainslie, 1975; Robbins and Dalley, 2017; Lovallo, 2013; R.C. O'Connor](#)

[and Kirtley, 2018](#)). Exposure to childhood trauma can induce changes in the mesocorticolimbic dopamine system, which is involved in impulsive choice behaviours ([Sanchez and Bangasser, 2022](#)). Impulsivity and inhibition represent related but distinct constructs, in that the former refers to a behavioural tendency towards rapid, unplanned actions, whereas the latter reflects the cognitive mechanism to deliberately withhold or override inappropriate or prepotent responses. Impulsivity has been independently linked to childhood trauma and suicide vulnerability, as well as to adverse health behaviours ([Beach et al., 2022; Lovallo et al., 2013; D.B. O'Connor, Branley-Bell, et al., 2021; R.C. O'Connor and Kirtley, 2018](#)).

Another transdiagnostic risk factor for the development of psychopathology is perseverative cognition, i.e., brooding, rumination, and worry, which can be defined as repetitive (negative) thinking ([Brosschot et al., 2005](#)). It has been argued that the tendency to engage in rumination and worry is more prominent in individuals who have been exposed to childhood trauma ([Gold and Wegner, 1995; O'Connor et al., 2025; Sarin and Nolen-Hoeksema, 2010](#)). Recent systematic reviews found rumination and brooding to be positively associated with suicide ideation and attempt ([Colmenero-Navarrete et al., 2022; Rogers and Joiner, 2017](#)). A separate systematic review has recently identified childhood trauma to be associated with higher levels of rumination and worry in adults and rumination to be associated with worse clinical outcomes such as depression and suicidal ideation ([Mansueto et al., 2021](#)).

The direction, strength, quality, and consistency of the association between childhood trauma and these risk factors have not been comprehensively synthesised in a single review. Hence, this overview of reviews will focus on three of these transdiagnostic risk factors: executive function, impulsivity, and perseverative cognition, aiming to provide a comprehensive overview of neurodevelopmental outcomes of childhood trauma. Primary studies and systematic reviews can provide insight into trends on a small-to-medium scale, but broader overviews of research allow for a more comprehensive outlook, identifying these trends on a larger scale. Overviews of systematic reviews (or umbrella reviews, reviews of reviews), i.e., a systematic evidence synthesis of multiple systematic reviews and meta-analyses published on a specific research area, can advance knowledge in this area by providing the most comprehensive and wide range view on a topic, and allow for the synthesis of evidence from multiple similar strands of research; here, allowing for the inclusion of numerous putative risk factors, i.e., executive function, impulsivity, worry and rumination. Umbrella reviews can also overcome the biases present in individual systematic reviews, by assessing their quality and comparison of conclusions to other systematic reviews ([Aromataris et al., 2015; Fusar-Poli and Radua, 2018](#)). Further, by combining a large volume of evidence into a single synthesis, umbrella reviews can offer guidance for decision makers and individuals involved in the development of interventions, highlighting future research directions and priorities, and enhancing research efficiency by identifying research gaps ([Fernandez et al., 2025](#)). To our knowledge, this is the first umbrella review that aims to synthesise, comprehensively evaluate, and critically appraise the evidence of the associations between childhood trauma and executive function, impulsivity, and perseverative cognition.

2. Methods

The protocol of this population-specific umbrella review was pre-registered on PROSPERO: CRD42024628582. The Preferred Reporting Items for Overviews of Reviews (PRIOR) Statement was used as the reporting framework for the review ([Gates et al., 2022](#)). The completed PRIOR checklist can be found in the [Supplementary Materials](#). Further, JBI Evidence Synthesis Guidelines and Cochrane guidelines for narrative synthesis were followed for the results section of the review ([Aromataris et al., 2024; Ryan and Cochrane Consumers and Communication Review Group, 2013](#)).

2.1. Search strategy

An umbrella review was conducted. The following electronic databases were searched on the 6th January 2025: EBM Reviews, EMBASE, PsycINFO, PubMed, Scopus, Web of Science. An updated search was run on the 9th June 2025. Only published, peer-reviewed articles were included. The search was limited to articles published in English. No other restrictions were applied. The search terms included both text words and Medical Subjective Headings (MeSH terms). The full set of search terms across each database is reported in the [Supplementary Materials](#). Duplicates were filtered using EndNote. Reference lists of included studies were examined based on the inclusion and exclusion criteria.

2.2. Selection process and eligibility criteria

All records identified were initially title and abstract screened by two independent reviewers (SH & EF; 99.08% agreement, Cohen's kappa $\kappa = 0.94$, indicating near perfect agreement), after which the selected records were full text screened, again by both researchers, and full consensus was reached. Any disagreements were resolved through discussion, and if required a third reviewer was consulted.

Systematic reviews and meta-analyses were included if they synthesised data on the associations between childhood trauma, and one of the following: a) executive function, b) impulsivity, c) worry and rumination. Childhood trauma was defined as the experience of trauma, including abuse and/or neglect, before the age of 18, which must have occurred first-hand, i.e., not generational trauma. Reviews that were not systematic reviews or meta-analysis were excluded ([Krnjc Martinic et al., 2019](#)). Reviews solely focusing on children and adolescents (participants under the age of 18) were also excluded.

2.3. Data extraction and synthesis

Data extraction was performed independently by two reviewers (SH & EF), and any disagreements were resolved through discussion. Data extraction was completed using pre-determined data extraction sheets (available in [Supplementary Materials](#)), with the following variables collected: type of review; databases searched; time of database search; main findings; whether the review included any subgroups (and if yes, results for these); number of studies included; participants and their characteristics; method of assessing study quality, risk of bias, heterogeneity; measures of childhood trauma, executive function, impulsivity, and perseverative cognition; clinical recommendations; limitations. The extracted data was independently cross-checked to ensure consistency. The literature presents with significant variation in what constitutes as childhood trauma and executive function. For instance, some authors use ACEs and others focus solely on childhood abuse. Hence, this review used the authors' descriptions and definitions of the included constructs. A formal narrative synthesis was performed (see 'Synthesis Methods').

2.4. Quality assessment of the evidence

To assess the quality and certainty of evidence, two reviewers (SH & EF) independently applied the 16-item A MeaSurement Tool to Assess systematic Reviews 2 (AMSTAR 2) checklist ([Pollock et al., 2017](#); [Shea et al., 2017](#)). Reviews are rated across the items and split into critical and non-critical domains, and results indicate the overall confidence of the quality of the review, i.e., "high", "moderate", "low", and "critically low" ([Shea et al., 2017](#)). Items were scored as 'Yes', 'No', 'Partial yes', or not applicable for meta-analysis. Any disagreements between reviewers were resolved through discussion and consensus. Based on the methodology of [Hennessy et al., \(2020\)](#), the appraised studies are considered as higher quality if they satisfy at least 70% of the AMSTAR 2 items, as medium quality for 50–69%, and as low quality if they satisfy less than 50% of the items.

2.5. Overlap between reviews

As included systematic reviews may address similar research questions, it is acknowledged that there may be a degree of overlap between the primary studies included in the reviews. Hence, as recommended by Pieper and colleagues (2014), the 'corrected covered area' (CCA) index was calculated to quantify the degree of overlap between all included reviews. The index is quantified as a percentage, whereby 0–5% indicates 'slight' overlap, 6–10% 'moderate' overlap, 11–15% 'high' overlap, and > 15% 'very high' overlap ([Pieper et al., 2014](#)). The citation matrix and CCA were calculated in Microsoft Excel.

2.6. Synthesis methods

A formal narrative synthesis was performed by grouping the included reviews into transdiagnostic risk factor domains (executive function, impulsivity, perseverative cognition) and sub-group by clinical status (non-clinical vs. clinical). Any qualitative results presented were taken from the eligible reviews using the metrics within which they were originally presented. These are supplemented with quantitative summary statistics where possible, e.g., total number of participants included in the review. Due to the heterogeneity between reviews with regards to the reporting of measures, and large amount of executive function measures reported across reviews, the most frequent measures are reported in a summary table (see [Supplementary Materials](#)) with frequency count, ordered based on cognitive domain they are reported to assess in the respective reviews and primary studies. The classification of an association between childhood trauma and a transdiagnostic risk factor was based on the reporting in the included reviews. For reviews with a narrative synthesis, this was based on the authors' conclusions. Meta-analyses included in this review either used Cohen's *d*, Hedge's *g*, Odds Ratio (OR), or correlation coefficient *r* as the measure of effect size. For comparisons between effect sizes and the harvest plot, effect sizes were converted into Cohen's *d* ([Polanin and Snilstveit, 2016](#)), and interpreted as trivial ($d < .1$), small ($d = .1 - .29$), small-to-medium ($d = .30 - .49$), medium ($d = .50 - .69$), and large ($d > .70$). These methods applied irrespective of the number of outcomes reported. Therefore, included reviews could contribute multiple times to the Harvest Plot (see [Fig. 2](#)).

3. Results

The initial search (6th January 2025) generated 7099 records. The removal of duplicates ($n = 2505$), title and abstract ($n = 4594$) and full text screening ($n = 102$) identified 18 eligible reviews. Three additional reviews were identified via reference list searches. An updated search on the 9th June 2025 found an extra 232 papers (EBM Reviews, $n = 8$; Embase, $n = 97$; PsycINFO, $n = 28$; PubMed, $n = 2$; Scopus, $n = 8$; Web of Science, $n = 89$). Following duplicate removal ($n = 33$), 199 abstracts and 6 full texts were screened leading to one extra review and a total of 22 articles included in this synthesis (see [Fig. 1](#)). A list of excluded full-text screened studies, including reasons for exclusion, is provided in [Supplementary Materials](#). A list of all excluded studies can be requested from the corresponding author.

3.1. Characteristics of included studies

This overview of reviews included 22 systematic reviews covering executive function ($n = 16$, 72.73%), perseverative cognition ($n = 4$, 18.18%), and impulsivity ($n = 2$, 9.09%). The total number of primary studies (excluding overlap) was 639, with the number of primary studies per review ranging from 10 to 215 (median = 23.5, mean = 37.14). The included reviews were published from 2013 to 2025 (median = 2019). The location of the first author had the following distribution: Canada (5/22, 22.7%), Italy (2/22, 9.1%), Spain, (2/22, 9.1%), The Netherlands (2/22, 9.1%), USA (2/22, 9.1%), Australia (1/22, 4.5%), Brazil (1/22,

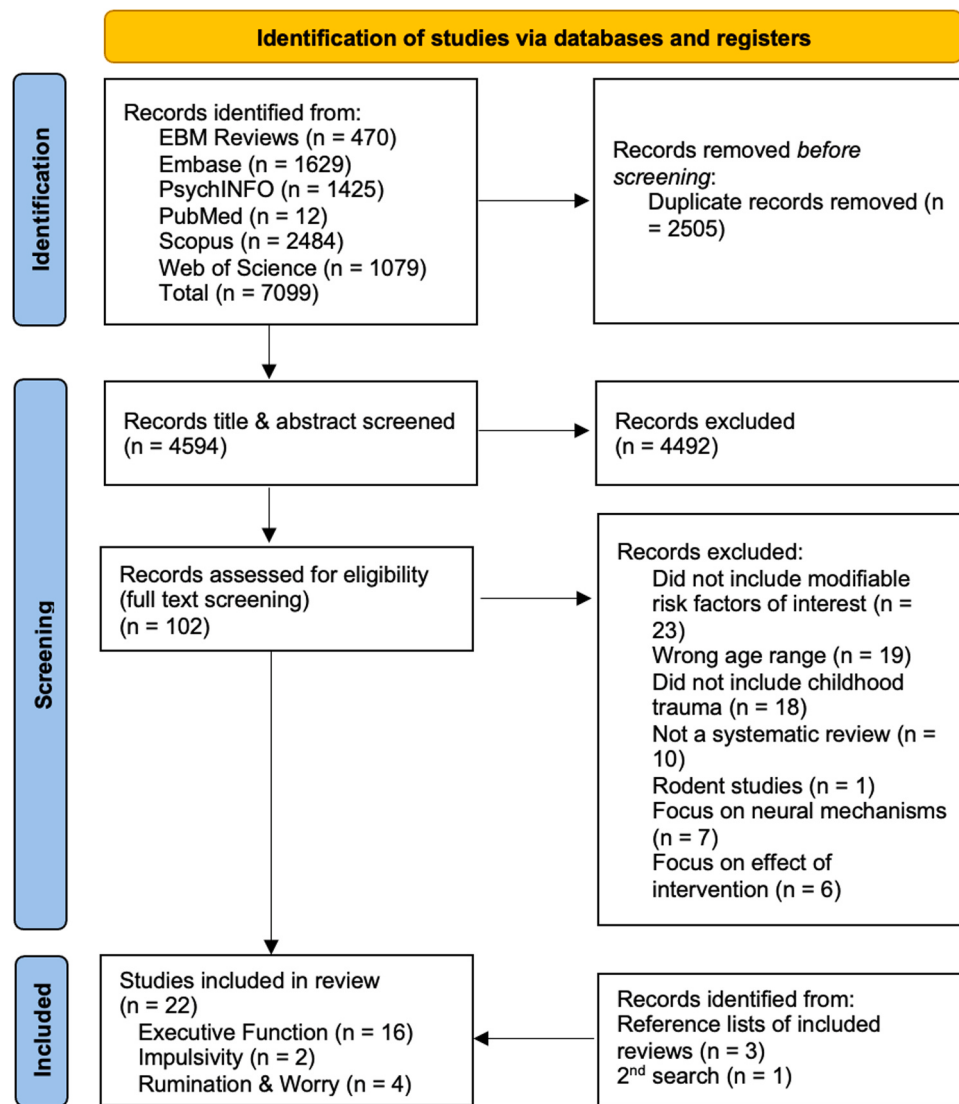


Fig. 1. PRISMA Flow Diagram (Page et al., 2021).

4.5%), China (1/22, 4.5%), Indonesia (1/22, 4.5%), Ireland (1/22, 4.5%), New Zealand (1/22, 4.5%), Norway (1/22, 4.5%), Romania (1/22, 4.5%), UK (1/22, 4.5%). Reviews included participants across age groups (i.e., children, adolescents, young and older adults), with most participants being adults. Four reviews included participants across all age groups (Masson et al., 2015, 2016; Rahapsari and Levita, 2024; R-Mercier et al., 2018), two reviews focussed on children and young adults (Op Den Kelder et al., 2018; Van Der Bij et al., 2020), the rest of the reviews focussed on adults only. Seventeen (77.27%) reviews included participants with psychopathology. The reviews had a total sample size of $n = 209,608$ (median = 8070, minimum = 734, maximum = 69,609). Seven (31.81%) reviews did not report sample size. Characteristics of included studies are presented in Table 1.

3.2. Primary study overlap

The overlap between all reviews (CAA = 1.28%), the reviews on executive function (CAA = 3.2%) and reviews on perseverative cognition (CAA = 1.89%) were all minimal. The overlap across impulsivity reviews was moderate (CAA = 6.25%).

3.3. Methodological quality of included studies

AMSTAR 2 ratings for the included reviews are summarised in [Supplementary Materials](#). Of the 22 included reviews, most were classified as of good ($n = 10$, 45.45%) or high ($n = 11$, 50%) quality (see Table 1), satisfying at least 50% or 70% of AMSTAR 2 criteria respectively. One (4.54%) review (Aas et al., 2014) was of poor quality, satisfying less than 50% of AMSTAR 2 criteria (range: 46.8 – 93.7%). Reviews performed better in relation to some critical appraisal items than others. Specifically, all reviews ($n = 22$, 100%) included a PICO description (i.e., population, intervention, control group, and outcome), justified their study design and described their included studies in detail. All meta-analyses ($n = 11$, 50%) used appropriate statistical methods. Most reviews used a comprehensive literature search strategy ($n = 21$, 95.4%), and reported conflicts of interest ($n = 20$, 90.9%). By contrast, few reviews included a list of excluded studies ($n = 1$, 4.5%), and none reported funding sources of the primary studies. The average inter-rater reliability across all AMSTAR 2 items was Cohen's kappa $\kappa = 0.89$, with an average percentage agreement of 98.6%, indicating near perfect agreement.

Table 1

Characteristics of included studies.

Authors, Year, Country of origin	Outcome	Type of review	Databases searched	Time of search	Proportion of AMSTAR 2 items satisfied
Aas et al., (2014). Norway	General intellectual function, executive function, attention, working memory, memory, processing speed, motor speed	Systematic	Medline (PubMed), PsycINFO	June 2013	46.8%
Barczyk et al., (2023). New Zealand	Global cognitive function, executive function/attention (incl. working memory, inhibition, flexibility), psychomotor speed and verbal and non-verbal learning and memory	Systematic	Embase, PsycINFO, PubMed	January 2022	81.2%
Dauvermann and Donohoe, (2019). Ireland	Higher cognitive function (incl. executive function)	Systematic	PsycINFO, PubMed	December 2017	56.2%
Fares-Otero et al., (2025). Spain	Cognitive function (incl. global cognition/IQ, attention/processing speed, verbal memory/learning, working memory, executive function, verbal fluency)	Systematic with meta-analysis	PubMed (Medline), PsycINFO, Embase, Web of Science (Core Collection), Cochrane, PILOTS	June 2024	93.7%
Goodman et al., (2019). Australia	Working memory	Systematic with meta-analysis	PsycINFO, PubMed, ProQuest, Cochrane Central Register of Controlled Trials (CENTRAL), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Published International Literature on Traumatic Stress (PILOTS), and Science Direct electronic bibliographic databases	July 2017	87.5%
Irigaray et al., (2013). Brazil	Cognitive function (incl. attention, executive functions, verbal episodic, visual, and working memory, language, intelligence)	Systematic	Medline, PsycINFO, Embase, Amed	2011	50%
Li et al., (2020). UK	Brooding, rumination	Systematic	PsycINFO, Web of Science, MEDLINE, Scopus, and ProQuest (including PTSDpubs database, Health & Medical Collection, Research Library, Science Database, and Social Science Database)	January 2020	75%
Liu, (2019). USA	Impulsivity	Meta-analysis	PsycINFO, MEDLINE	June 2017	56.2%
Lund et al., (2022). Canada	Executive function (working memory, attention, inhibitory control (inhibition), cognitive flexibility (set-shifting), planning, and initiation)	Systematic	Academic Search Complete, The Cochrane Library, ERIC (Educational Resources Information Centre)Evidence Based Medicine (EBM) Reviews, JSTOR, MEDLINE, PubMed, ProQuest Dissertations and Theses Database, PsycARTICLES, PsycINFO, Public Health Department of the Cree Health Board, ScienceDirect, Social Sciences Citation Index, Social Services Abstracts, SSRN (Social Science Research Network), Web of Science, Grey literature	June 2019	62.5%
Mansueto et al., (2021). Italy	Repetitive negative thinking (worry and rumination)	Systematic	PubMed, Ebsco	November 2020	68.7%
Masson et al., (2015). Canada	Cognitive function (working memory, attention, intelligence, processing speed, executive function, visual episodic memory, visuo-spatial/problem solving)	Meta-analysis	MEDLINE (PubMed), PsycINFO, Embase	June 2013	75%
Masson et al., (2016). Canada	Cognitive function (working memory, attention, intelligence, processing speed, executive function, visual episodic memory, visuo-spatial/problem solving)	Meta-analysis	MEDLINE, PsycINFO, Embase	June 2013	68.7%
Miu et al., (2022). Romania	Emotion regulation (incl. rumination)	Meta-analysis	PubMed, PsycINFO, Web of Science, Google Scholar	July 2021	81.2%
Op Den Kelder et al., (2018). The Netherlands	Executive function (incl. working memory, inhibition, cognitive flexibility)	Meta-analysis	PsycINFO, Embase, MEDLINE	August 2017	68.7%
Pérez-Balaguer et al., (2022). Spain	Impulsivity	Systematic with meta-analysis	PubMed, PsycINFO, Web of Science, EMBASE	February 2021	81.2%
R.-Mercier et al., (2018). Canada	Cognitive function (working memory, attention, intelligence, processing speed, executive function, visual episodic memory, visuo-spatial/problem solving)	Meta-analysis	MEDLINE (PubMed), PsycINFO, Embase	July 2017	50%
Rahapsari and Levita, (2024). Indonesia	Cognitive control (incl. working memory, cognitive flexibility, inhibitory control)	Systematic with meta-analysis	SCOPUS, MEDLINE, PsycINFO, Web of Science	December 2023	87.5%
Rosa et al., (2023). Italy	Cognitive domains (incl. general cognitive ability, executive functions, working memory, attention, processing speed, verbal/visual memory)	Systematic	PubMed, Embase, PsycINFO	May 2022	81.2%
Su et al., (2019). Canada	Cognitive function (incl. cognitive development, memory, academic achievement, literacy/verbal comprehension, intelligence,	Systematic	EMBASE, HealthStar, PsycINFO, MEDLINE, Cochrane Library	December 2017	75%

(continued on next page)

Table 1 (continued)

Authors, Year, Country of origin	Outcome	Type of review	Databases searched	Time of search	Proportion of AMSTAR 2 items satisfied
Van Der Bij et al., (2020). The Netherlands	executive function, processing speed, perceptual reasoning, non-verbal reasoning) Inhibitory control (prepotent response inhibition, interference control)	Systematic	MEDLINE, Embase, PsycINFO	July 2018	62.5%
Vargas et al., (2019). USA	Neurocognitive function (incl. working memory, executive function, verbal/visual memory, attention/processing speed)	Systematic with meta-analysis	PubMed, Ovid Medline, Web of Science	July 2018	75%
Zhao et al., (2022). China	Negative automatic thoughts (incl. rumination)	Systematic	PubMed, Web of Science, PsycINFO	October 2021	68.7%

3.4. Quality appraisals included in reviews

Eighteen of the included reviews (81.81%) critically appraised their included studies, whilst four (18.18%) did not. Out of these studies, two (9.09%) found that study quality impacted the results (Miu et al., 2022; Op Den Kelder et al., 2018), whilst the others did not. Op Den Kelder et al., (2018) found lower-quality studies to yield larger effect sizes. Whilst Miu et al., (2022) did not find study quality to impact the role of rumination as a mediator between childhood trauma and depression, they found the indirect effect of childhood trauma on psychopathology through reappraisal to be influenced by primary study quality, so that this effect was only significant in high-quality studies. Reviews generally reported at least half of their included primary studies to be of good quality. All eleven meta-analyses (50%) reported robustness in effect sizes, and included and corrected for publication bias in their quantitative analysis, which did not affect the direction of results (Fares-Otero et al., 2025; Liu, 2019; Masson et al., 2015, 2015; R-Mercier et al., 2018). A summary of risk of bias ratings and quality assessment tools used, including the resulting reported study quality and recommendations (where applicable), can be found in Table 2.

3.5. Findings of the review

The findings of this overview of reviews are presented below, divided into executive function, impulsivity, and perseverative cognition. Results from comparisons are between trauma exposed and non-trauma exposed individuals, unless otherwise stated. The summary of results of each review are presented in Table 3, accompanied by a narrative summary of results including a graphical representation (see Fig. 2).

3.5.1. Measures of childhood trauma

Twelve reviews (54.54%) reported the childhood trauma measures used in the included primary studies (Barczyk et al., 2023; Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025; Li et al., 2020; Lund et al., 2022; Mansueto et al., 2021; Masson et al., 2016; Pérez-Balaguer et al., 2022; R-Mercier et al., 2018; Rosa et al., 2023; Vargas et al., 2019; Zhao et al., 2022). Three reviews (13.63%) reported some detail on childhood trauma measures used (Goodman et al., 2019; R-Mercier et al., 2018; Su et al., 2019). Seven reviews (31.81%) did not report the childhood trauma measures used in included primary studies (Aas et al., 2014; Irigaray et al., 2013; Masson et al., 2015; Miu et al., 2022; Op Den Kelder et al., 2018; Rahapsari and Levita, 2024; Van Der Bij et al., 2020). This indicates substantial variation in the reporting of childhood trauma measures across reviews, as well as across included primary studies, impacting comparability and interpretability of results. A total of 61 different childhood trauma measures were reported across reviews. Most (98.3%) were self-report measures, and reviews reported self-report measures to be the most frequently used type of childhood trauma assessment. The Childhood Trauma Questionnaire (CTQ) was the only measure reported in all reviews, with eight reviews specifically mentioning this to be the most frequently used measure across included

primary studies. A table detailing all childhood trauma measures reported across the reviews is included in the [Supplementary Materials](#).

3.5.2. Summary of review findings / overall synthesis of findings

Fig. 2 presents a harvest plot summarising the evidence on the associations between childhood trauma and transdiagnostic risk factors for psychopathology across non-clinical and clinical populations. Effect sizes are ordered from large to trivial, with narrative reviews positioned to the right-hand side within each category. It is important to note that, as some reviews report the association between childhood trauma and multiple outcome types, some reviews are represented more than once in the harvest plot.

Notably, all but one (Aas et al., 2014) of the reviews were of medium or high study quality. Across both populations, most evidence is clustered in the small to medium effect size range, with narrative syntheses generally supplementing the evidence from meta-analyses. Most studies support deficits in executive function (most commonly working memory) across both populations. Interestingly, trivial effect sizes were observed in the visuospatial ability / problem solving and visual memory domains across both clinical and non-clinical populations.

Relatively few large effects were observed. Where large effects were observed, i.e., in the domains attention, verbal ability / language, and visuospatial ability / problem solving in clinical populations, all of these effects were from a single review (Masson et al., 2016) that compared trauma-exposed individuals with psychopathology versus and healthy controls. Unlike the other included reviews, it is unknown whether the effects are driven by clinical condition, childhood trauma or a combination of the two.

The findings of the other reviews focused on clinical populations suggest that while the effects of childhood trauma on some outcomes can be trivial (visuospatial ability/problem solving; verbal ability/language), for other domains (e.g., working memory) they are typically non-trivial (small effects) suggesting an impact of childhood trauma on transdiagnostic risk factors over and above clinical condition.

In clinical populations, strongest evidence, in the form of largest effect sizes, derived from meta-analytic findings for an impact of childhood trauma was found for working memory, attention, verbal memory, and impulsivity. Most consistent effects derived from meta-analytic and narratively synthesised findings was found for executive function, general cognitive ability, processing speed, and perseverative cognition. Fewer studies supported an impact of childhood trauma on visual memory. Only one narrative review (Van Der Bij et al., 2020) found an impact of childhood trauma on inhibitory control in clinical populations, as well as no studies finding an impact on cognitive flexibility / set shifting.

In non-clinical populations, most consistent evidence and largest effect sizes for an impact of childhood trauma was found for executive function, and its subdomains working memory and inhibitory control. Higher levels of impulsivity and perseverative cognition were also consistently observed, supported by medium and small-to-medium effect sizes, respectively. Fewer reviews supported an impact of childhood

Table 2
Appraisal of primary study quality in included studies.

Review	Quality assessment tools	Reported study quality and recommendations (<i>where applicable</i>)
Aas et al., (2014) Barczyk et al., (2023)	Not reported. Risk of Bias assessment (Joanna Briggs Institute checklists; Checklist for Randomised Control Trials, $n = 2$; Checklist for Quasi-Experimental studies, $n = 2$; Checklist for Analytical Cross-Sectional Studies, $n = 13$)	n/a Risk of Bias not discussed, results section ordered by suitability according to RoB results.
Dauvermann and Donohoe, (2019)	Not reported.	n/a
Fares-Otero et al., (2025)	Newcastle-Ottawa Scale for non-randomised studies.	$n = 8$ 'high', $n = 8$ 'good', $n = 2$ 'fair', $n = 2$ 'poor' quality; recommendation of conducting adequately powered studies and inclusion of confounding variables.
Goodman et al., (2019)	8-point checklist; Egger's test for publication bias.	$n = 15$ 'good' quality, $n = 11$ 'fair' quality; Publication bias suggests small sample studies without significant effect are less likely to be published, relationship remained constant after accounting for publication bias.
Irigaray et al., (2013) Li et al., (2020)	Not reported. Effective Public Health Practice Project tool (adapted).	n/a Over half the included studies ($n = 18$) high risk for selection bias; $n = 8$ weak strength of statistical mediation analysis; suggesting that the mediators identified in cross-sectional studies should be endorsed with caution.
Liu, (2019)	Orwin's fail-safe N; Egger's regression intercept.	Orwin's fail-safe-N suggested robustness in effect sizes; Egger's indicated significant publication bias, corrected with Duval and Tweedie's trim-and-fill analysis.
Lund et al., (2022) Mansueto et al., (2021)	Not reported. Newcastle-Ottawa scale for case-control studies (adapted for cross-sectional studies); homogeneity of the sample; appropriateness of random allocation.	n/a 83.3% of studies scored 5 or 6 out of 10 on the Newcastle-Ottawa scale (medium quality); instruments for assessing CT used in studies not homogenous; lack of control for confounding variables emphasised.
Masson et al., (2015)	Publication bias (funnel plot).	Symmetry at the top, asymmetry at the bottom of funnel plot, indicative of publication bias. Corrected with Duval and Tweedie's trim-and-fill analysis.
Masson et al., (2016)	Publication bias (funnel plot).	Some asymmetry at the top and at the bottom of funnel plot, indicative of publication bias. Corrected with Duval and Tweedie's trim-and-fill analysis.
Miu et al., (2022)	Study quality assessed on previously established criteria (Madigan et al., 2019; Thornberry et al., 2012). Assessment of influence of study quality on results.	Majority of studies scored high-quality on criteria. 3.21% of studies used a representative sample; difference between high- and low-quality studies, Indirect effects only shown in high-

Table 2 (continued)

Review	Quality assessment tools	Reported study quality and recommendations (<i>where applicable</i>)
Op Den Kelder et al., (2018)	Quality Assessment Tool for Quantitative Studies of the Effective Public Health Practice Project for assessing overall study quality; Precision-effect-test and precision-effect estimate with standard error (PET-PEESE) approach for publication bias.	quality studies. Recommendation to include control groups. 40% of studies were of low quality; studies with lower quality yielded stronger effect sizes; studies using low-quality working memory measures showed stronger effect sizes than when using high-quality measures; PET-PEESE indicative of small study bias, indicating file-drawer problem. Recommendation to control for confounding variables. 13 studies high quality, 1 study medium quality.
Pérez-Balaguer et al., (2022)	Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.	
R.-Mercier et al., (2018)	Publication bias (funnel plot).	Symmetry at the top, asymmetry at the bottom of funnel plot, indicative of publication bias. Corrected with Duval and Tweedie's trim-and-fill analysis.
Rahapsari and Levita, (2024)	Newcastle-Ottawa Scale adapted for longitudinal studies to assess risk of bias; Publication bias (funnel plot; Egger's regression model).	One study (3.1%) had a poor quality, 21 studies (65.62%) had a fair quality, 10 studies (31.25%) had a good quality score. Heterogeneity significant for all three outcomes (working memory, cognitive flexibility, inhibitory control). Recommended to assess and consider timing, duration, and severity of CT as well as protective factors and other potential moderators; negative effect sizes indicated small probability of publication bias; no association between risk of bias and cognitive control domains.
Rosa et al., (2023)	Newcastle-Ottawa Scale to assess study quality and risk of bias.	27 cross-sectional, 28 case-control and 7 cohort-longitudinal studies "good" quality score (83.7% of studies).
Su et al., (2019)	Newcastle-Ottawa Scale to assess study quality and risk of bias.	Average score of 7.9; 64% of studies "good" quality.
Van Der Bij et al., (2020)	Assessment Tool for Quantitative Studies of the Effective Public Health Practice Project to assess study quality.	11 papers strong quality, 13 moderate quality, 9 (27%) weak quality.
Vargas et al., (2019)	Downs and Black checklist to assess quality of studies and risk of bias.	Scores ranged from 11 to 17 out of 18, mean 14. Low quality on criteria for conducting power analysis, reporting of recruitment and blinding of interviewers.
Zhao et al., (2022)	Joanna Briggs Institute Critical Appraisal Checklist for Cohort studies and for Analytical Cross-Sectional Studies.	All studies showed good quality. Criticism on identification of confounding variables.

Table 3
Summary of results of included studies.

Author, year	Comparator	Outcome(s)	Sample characteristics	Type of included studies	N studies and participants included	Quantitative results (if available)	Overall conclusion (verbatim)	Key synthesised findings	AMSTAR 2 %age items fulfilled
Aas et al., (2014)	Clin + CT vs. Clin - CT	General intellectual function, executive function, attention, working memory, memory, processing speed, motor speed	First-episode psychosis (FEP)	Case-control studies	24 (6 focussing on CT); number of total participants not reported.	Qualitative description only.	“...early stress may have long-lasting changes on cognitive function by affecting expression of relevant genes.”	Patients with CT and FEP perform significantly worse on measures of executive function, processing speed, and working memory, compared to individuals without CT. One study found controls with CT to have worse cognitive function than FEP patients, one study found no effect.	46.8%
Barczyk et al., (2023)	Clin + CT vs. Clin - CT	Global cognitive function, executive function/attention (incl. working memory, inhibition, flexibility), psychomotor speed and verbal and non-verbal learning and memory	Major depressive disorder, bipolar disorder	13 Cross-sectional, 2 open-label antidepressant trials, 2 RCTs	17; n = 1723 clinical participants, n = 797 healthy controls.	Qualitative description only.	“Evidence for childhood trauma being related to poorer cognitive functioning was consistent across global cognitive functioning and executive function domains for euthymic patients and psychomotor speed for in-episode patients.” “Findings from this review suggest childhood trauma is associated with poorer cognitive functioning in people with mood disorders.”	Individuals with CT and mood disorder showed worse global cognitive functioning, executive function, and attention (euthymic), and worse psychomotor-speed (in-episode).	81.2%
Dauvermann and Donohoe, (2019)	Clin + CT vs. Clin - CT	Higher cognitive function (incl. executive function)	Schizophrenia, bipolar disorder, psychosis.	Cross-sectional	21	Qualitative description only.	“Significantly reduced cognitive function following the experience of CT was observed in patients with bipolar disorder and schizophrenia as well as healthy participants. Across study groups, associations between CT experience and cognitive performance were more variable in patients with chronic schizophrenia than in for either healthy participants, ultra-high-risk individuals, first-episode patients, or patients with chronic bipolar disorder,	Childhood trauma was associated with reduced cognitive function in both the patient and healthy participant groups.	56.2%

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Table 3 (continued)

Author, year	Comparator	Outcome(s)	Sample characteristics	Type of included studies	N studies and participants included	Quantitative results (if available)	Overall conclusion (verbatim)	Key synthesised findings	AMSTAR 2 %age items fulfilled
Fares-Otero et al., (2025)	Clin + CT vs. Clin – CT	Cognitive function (incl. global cognition/IQ, attention/processing speed, verbal memory/learning, working memory, executive function, verbal fluency)	Bipolar disorder	Cross-sectional (n = 17), longitudinal (n = 3)	20 (17 in meta-analysis); n = 2457 participants.	Overall CT was negatively associated with global cognition/IQ (r = -.169), attention and processing speed (r = -.177), verbal memory and learning (r = -.137), but not working memory (r = -.018), executive functions and verbal fluency (r = -.015).	possibly owing to the high levels of cognitive heterogeneity in this group.” “Being exposed to CM, especially physical maltreatment, is associated with worse cognitive functioning in BD.”	Overall CT was associated with worse cognitive function in bipolar disorder. Worse executive function was found in samples with sexual/physical abuse and physical neglect.	93.7%
Goodman et al., (2019)	CT vs. no CT	Working memory	Healthy participants and psychopathology.	Cross-sectional (n = 24), longitudinal (n = 2).	26 (23 in meta-analysis); n = 26,976 participants.	“The combined effect size (Hedge’s g = 0.22) showed those who had experienced early life stress were significantly more likely to show impaired working memory ability in adulthood than those who had not experienced early life stress. This analysis revealed a significant negative association between early life stress and working memory ability in both the phonological domain (Hedge’s g = 0.18) and the visuospatial domain (Hedge’s g = 0.24). A significant negative relationship between early life stress and working memory was found in both clinical (Hedge’s g = 0.21) and non-clinical samples (Hedge’s g = 0.23).”	“Results of the meta-analysis suggested exposure to early life stress was associated with poorer working memory.”	There was a significant negative relationship between CT and WM, which remained for both phonological and visuospatial WM tasks, and was present in samples with and without psychopathology.”	87.5%
Irigaray et al., (2013)	CT vs. no CT	Cognitive function (incl. attention, executive functions, verbal episodic, visual, and working memory, language, intelligence)	Healthy participants, clinical samples (schizoaffective disorder and MDD).	Case-control (n = 16), cross-sectional (n = 1).	17 (11 adult, 6 child & adolescent); n = 487 adult, n = 853 child & adolescent participants.	Qualitative description only.	“Adults or children/teenagers exposed to abuse during childhood performed poorly on tasks meant to assess verbal episodic memory, working memory, attention, and executive functions.”	Adults with CT showed impairments in executive functioning, verbal episodic memory, and working memory. The effect remained significant after controlling for confounders such as SES, IQ, psychopathology.	50%
Li et al., (2020)	CT vs. no CT	Brooding, rumination	Depression.	Cross-sectional (n = 24), longitudinal (n = 9), case-control (n = 1).	34; n = 18,529 adult, n = 3434 adolescent participants.	Qualitative description only.	“Chronic experiences of parental emotional abuse may increase children’s internal focus and lead to emotion dysregulation, such as rumination. Individuals who tend to ruminate in response to negative life events are at high risk of	Brooding, rumination, and emotional dysregulation were the most consistent mediators linking CT and depression.	75%

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Table 3 (continued)

Author, year	Comparator	Outcome(s)	Sample characteristics	Type of included studies	N studies and participants included	Quantitative results (if available)	Overall conclusion (verbatim)	Key synthesised findings	AMSTAR 2 %age items fulfilled
Liu, (2019)	CT vs. no CT	Impulsivity	Healthy participants.	Cross-sectional.	55; n = 16,433 participants.	Odds ratio (OR) as index of effect size. CT was associated with greater general trait impulsivity (OR=2.54). Effect remained for CT domains: sexual abuse (OR=1.59), physical abuse (OR=2.05), physical neglect (OR=2.08), emotional abuse (OR=3.10), emotional neglect (OR=2.17). Larger effect for clinical (OR=2.56) than for community (OR=1.78) samples.	developing and maintaining depressive symptoms.” “General support was found for a positive association between childhood maltreatment, including its specific subtypes, and general trait impulsivity” “Regarding specific facets of impulsivity, a consistent pattern was observed among BIS subscales, with all three facets of impulsivity being specifically associated with childhood abuse (small to medium pooled effects) but not with childhood neglect.”	CT was associated with increased levels of impulsivity, with strongest effects for childhood abuse.	56.2%
Lund et al., (2022)	CT (+ Clin) vs. no CT (+ Clin)	Executive Function (working memory, attention, inhibitory control (inhibition), cognitive flexibility (set-shifting), planning, and initiation)	Healthy and clinical (bipolar disorder, schizophrenia, post-traumatic stress disorder, first episode psychosis, MDD) samples.	Cross-sectional (n = 16), longitudinal (n = 1).	17 (11 clinical samples); n = 10,105 adults, n = 2108 of which clinical.	Qualitative description only.	“there is evidence to suggest that ACEs (abuse and neglect in particular), are associated with EF difficulties seen in early and middle adulthood.”	Individuals exposed to CT performed worse on measures of executive function. An increased risk of EF difficulties was found in some clinical populations (bipolar disorder, schizophrenia, post-traumatic stress disorder, FEP), but not others (MDD).	62.5%
Mansueto et al., (2021)	CT vs. no CT	Repetitive negative thinking (worry and rumination)	Non-clinical and clinical (MDD and early psychosis) samples.	Cross-sectional.	18 (3 clinical samples, 15 non-clinical samples).	Qualitative description only.	“In both non-clinical and clinical populations, worry and rumination seem to be common among adults exposed to childhood abuse or childhood neglect.”	CT was positively associated with higher levels of rumination and worry in adulthood.	68.7%
Masson et al., (2015)	CT vs. no CT	Cognitive function (working memory, attention, intelligence, processing speed, executive function, visual episodic memory, visuo-spatial/problem solving)	Non-clinical samples.	Case-control and cross-sectional.	50 (52 samples); n = 3919 (n = 1965 maltreated) participants.	In adult samples, CT resulted in deficits in working memory (g = -.47), attention (g = -.62), executive functioning (g = -.40), processing speed (g = -.40), and verbal episodic memory (g = -.19).	“The meta-analysis found that children, adolescents, and adults who had suffered from maltreatment had worse global cognitive performances than did individuals of similar ages in the general population (moderate effect size, g = -.50).”	CT affects cognitive function across the lifespan, with notable deficits in attention, working memory, and executive functioning in adulthood. Results remained consistent after controlling for at least two demographic variables (SES, age, gender).	75%

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Table 3 (continued)

Author, year	Comparator	Outcome(s)	Sample characteristics	Type of included studies	N studies and participants included	Quantitative results (if available)	Overall conclusion (verbatim)	Key synthesised findings	AMSTAR 2 %age items fulfilled
Masson et al., (2016)	Clin + CT vs. no Clin - CT	Cognitive function (working memory, attention, intelligence, processing speed, executive function, visual episodic memory, visuo-spatial/problem solving).	Psychiatric conditions (post-traumatic stress disorder, MDD; borderline personality disorder).	Case-control and cross-sectional.	12; 734 participants (313 clinical, 421 control).	Overall grand mean weighted effect size between individuals with psychopathology and CT and controls ($g = -0.59$). Moderate effect sizes for verbal episodic memory ($g = -0.77$), visuospatial/problem solving ($g = -0.73$), attention ($g = -0.72$), and intelligence ($g = -0.52$) were found.	"Results showed that people that suffered from psychiatric disorders and maltreatment had worse global cognitive performance than people of similar ages in the general population (moderate effect size, $g = 0.59$)."	The combination of CT and psychopathology negatively impacts cognitive function across the lifespan, compared to controls.	68.7%
Miu et al., (2022)	CT (+ Clin) vs. no CT (+ Clin)	Emotion regulation (incl. rumination).	Clinical (psychopathology) and non-clinical populations.	Cross-sectional ($n = 204$), longitudinal ($n = 11$).	215 (40 for rumination); $n = 13,888$ participants (rumination).	Mediating role of rumination between CT and psychopathology. CT was found to be associated with higher levels of rumination in path model analysis ($r = .21$, 95% CI 0.16 – 0.26).	"The results indicated that childhood adversity was positively associated with emotion regulation difficulties, as well as with the habitual use of rumination and suppression. In turn, these measures of emotion regulation were positively associated with psychopathology."	CT was significantly associated with higher levels of rumination. Rumination was a mediator between CT and psychopathology.	81.2%
Op Den Kelder et al., (2018)	CT vs. no CT	Executive function (incl. working memory, inhibition, cognitive flexibility).	Not reported.	Not reported.	55; $n = 8070$ participants.	Small to medium effect sizes for working memory ($d = -0.49$), inhibition ($d = -0.46$), and cognitive flexibility ($d = -0.44$).	"The results demonstrate small to moderate effect sizes for the association between trauma exposure and working memory ($d = -0.49$), inhibition ($d = -0.46$), and cognitive flexibility ($d = -0.44$). These small to medium effect sizes indicate that approximately 68% of trauma-exposed youth will have a lower score on executive function tasks than youth in the control group."	Individuals exposed to CT show deficits in working memory, inhibition, and cognitive flexibility, compared to non-trauma exposed controls.	68.7%
Pérez-Balaguer et al., (2022)	CT (+ Clin) vs. no CT (+ Clin)	Impulsivity	Non-clinical and clinical (MDD, bipolar) samples.	Cross-sectional ($n = 11$), longitudinal ($n = 3$).	14 (7 in meta-analysis); $n = 69,609$ participants.	"Results showed significant evidence for the direct associations trauma and suicide ($\beta = 0.15$, 95% CI 0.06–0.23), trauma and impulsivity ($\beta = 0.26$, 95% CI 0.21–0.30) and impulsivity and suicide ($\beta = 0.25$, 95% CI 0.13–0.37). ... Finally, the indirect effect for the path trauma→impulsivity→suicide showed also significant evidence ($\beta = 0.06$, 95% CI 0.03–0.10)."	"Impulsivity was a significant mediator of the relationship between childhood maltreatment and suicidal behavior in ten of the fourteen included studies. This result was confirmed using mediation meta-analysis ($\beta = .06$, 95% CI 0.03–0.10)."	It was found that the exposure to CT can affect cognitive development, which in turn can lead to increased levels of impulsivity and subsequently an increased risk of suicide.	81.2%

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Table 3 (continued)

Author, year	Comparator	Outcome(s)	Sample characteristics	Type of included studies	N studies and participants included	Quantitative results (if available)	Overall conclusion (verbatim)	Key synthesised findings	AMSTAR 2 %age items fulfilled
R.-Mercier et al., (2018)	Clin + CT vs. Clin – CT	Cognitive function (working memory, attention, intelligence, processing speed, executive function, visual episodic memory, visuo-spatial/problem solving).	Individuals with psychiatric disorders.	Not reported.	17; n = 1416 participants.	Medium effect sizes were observed for working memory ($g = -0.56$), small effect sizes for verbal episodic memory ($g = -0.39$), intelligence ($g = -0.27$) and processing speed ($g = -0.21$).	“Cognitive domains that are significantly affected by maltreatment are: working memory ($g = -0.56$), verbal episodic memory ($g = -0.39$), intelligence ($g = -0.27$) and processing speed ($g = -0.21$).”	Individuals with psychiatric disorders and a history of CT have impaired global neuropsychological test performance compared to those without CT, indicated by a small effect size ($g = -0.25$).	50%
Rahapsari and Levita, (2024)	CT vs. no CT	Cognitive control (incl. working memory, cognitive flexibility, inhibitory control).	Non-clinical population.	Prospective.	32; n = 26,863 participants.	CT negatively impacted overall cognitive control ($g = -0.32$), and each of the cognitive control domains: working memory ($g = -0.28$), cognitive flexibility ($g = -0.28$), and inhibitory control ($g = -0.32$).	“These findings highlight the pervasive negative impact of ACEs on cognitive control across ages and emphasize the need for targeted interventions.”	CT similarly impacted all three cognitive control domains, independently of age, study type, sex, and task paradigm used.	87.5%
Rosa et al., (2023)	CT (+ Clin) vs. no CT (+ Clin)	Cognitive domains (incl. general cognitive ability, executive functions, working memory, attention, processing speed, verbal/visual memory).	Non-clinical and clinical (schizophrenia, psychotic disorders, bipolar disorder, MDD, post-traumatic stress disorder, generalised anxiety disorder) population.	Case-control (n = 29), cross-sectional (n = 37), longitudinal (n = 8).	74; number of total participants not reported.	Qualitative description only.	“These findings suggest an association of CT/ELS with specific cognitive deficits and psychopathology.”	CT was linked to deficits in executive function, processing speed, and working memory in non-clinical populations, and to worse general cognitive ability, verbal/visual memory, processing speed, and attention in clinical populations.	81.2%
Su et al., (2019)	CT vs. no CT	Cognitive function (incl. cognitive development, memory, academic achievement, literacy/verbal comprehension, intelligence, executive function, processing speed, perceptual reasoning, non-verbal reasoning).	Non-clinical population.	Prospective cohort.	10; number of total participants not reported.	Qualitative description only.	“The findings of this review collectively indicated that nine domains of the cognitive functioning impairments were significantly related to multiple forms of maltreatment and that significance remained in multivariable analyses after controlling for potential confounders.”	CT was consistently associated with poorer cognitive functioning, which remained after controlling for covariates. Experiences of neglect were particularly associated with poorer executive functioning.	75%
Van Der Bij et al., (2020)	CT vs. no CT	Inhibitory control (prepotent response inhibition, interference control).	Non-clinical and clinical (post-traumatic stress disorder) population.	Not reported.	33; number of total participants not reported.	Qualitative description only.	“Together, the findings may suggest that non-specific inhibitory control problems occur after prolonged trauma exposure, with older youth possibly employing compensation strategies on the tasks.”	CT exposure was associated with lower inhibitory control, although effect reduced with age.	62.5%

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Table 3 (continued)

Author, year	Comparator	Outcome(s)	Sample characteristics	Type of included studies	N studies and participants included	Quantitative results (if available)	Overall conclusion (verbatim)	Key synthesised findings	AMSTAR 2 %age items fulfilled
Vargas et al., (2019)	CT (+ Clin) vs. no CT (+ Clin)	Neurocognitive function (incl. working memory, executive function, verbal/visual memory, attention/processing speed).	Psychotic disorders.	Cross-sectional.	23; n = 3315 participants.	Significant association between CT and overall cognitive ability ($r = -.055$), executive function ($r = -.065$), and working memory ($r = -.091$), verbal/visual memory ($r = -.047$), attention ($r = -.075$).	“A small negative association was found between overall cognition and childhood trauma in individuals with psychotic disorders. Results suggest the association is less strong for individuals with a psychotic disorder compared to healthy populations.”	CT affects neurocognition negatively in individuals with psychotic disorders, although this impact is greater in healthy controls.	75%
Zhao et al., (2022)	CT vs. no CT	Negative automatic thoughts (incl. rumination).	Depression.	Cross-sectional (n = 30), longitudinal (n = 3).	33; number of total participants not reported.	Qualitative description only.	“It may be concluded that maladaptive schema and negative automatic thoughts consistently mediate the association between childhood negative events and depressive symptoms.”	Rumination was identified as a mediator between CT and depression, with CT leading to higher levels of rumination.	68.7%

Note. BD = Bipolar Disorder; Clin = Clinical status; CM = Childhood Maltreatment; CT = Childhood Trauma; ELS = Early Life Stress; FEP = First-Episode Psychosis; IQ = Intelligence Quotient; MDD = Major Depressive Disorder; OR = Odds Ratio; RCT = Randomised Control Trial; SES = Socio-Economic Status; WM = Working Memory.

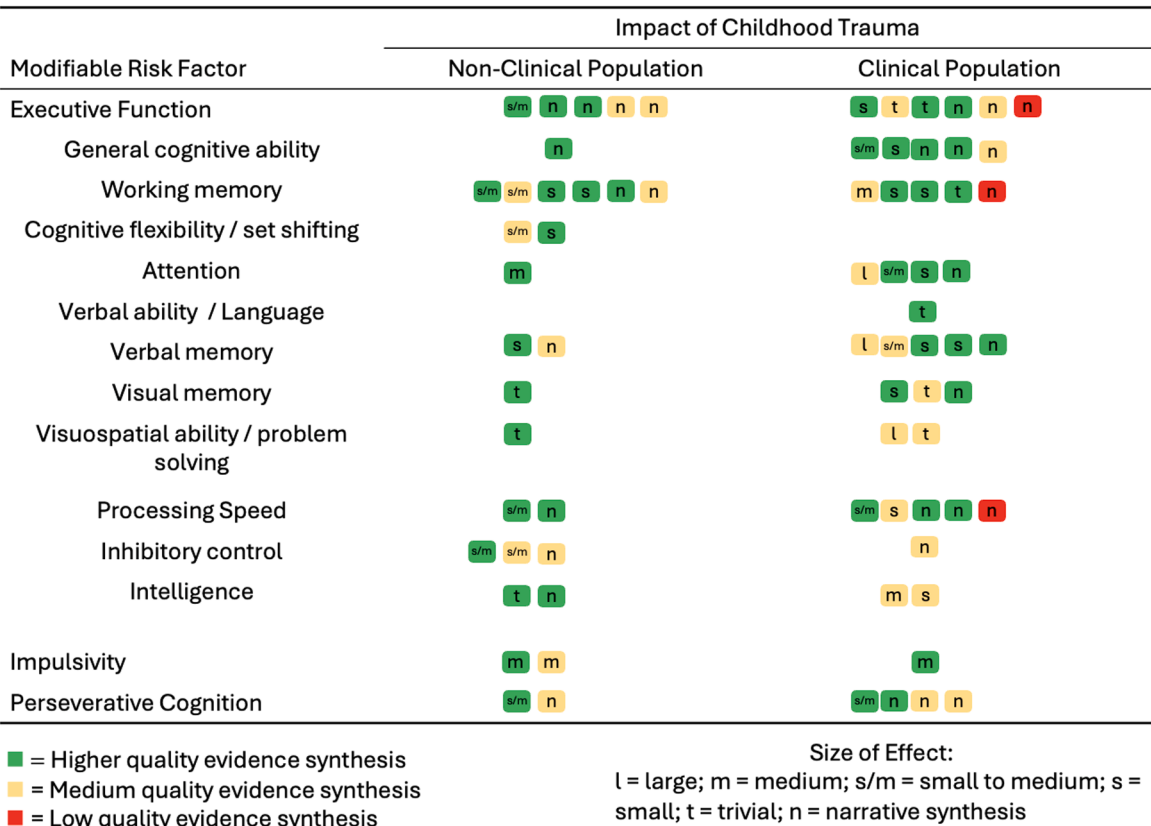


Fig. 2. Harvest plot for the effects of childhood trauma on modifiable risk factors (Note: some reviews are represented more than once in the plot).

trauma on cognitive flexibility, attention, verbal memory, and inhibitory control, although those that did found small-to-medium effects.

Overall, transdiagnostic risk factors were negatively impacted in both clinical and non-clinical populations. Effects of childhood trauma are medium-sized for impulsivity and small-to-medium for perseverative cognition. Reviews of the effects of childhood trauma on executive function are more common than reviews covering impulsivity or perseverative cognition and yielded more variable effects. However, after excluding the review that did not separate effects of clinical condition and childhood trauma, effects typically small to medium sized. Executive function, working memory, impulsivity, and perseverative cognition showed the most consistent evidence for an association with childhood trauma across both population groups, whereas findings for verbal ability / language were the least supported. However, it is important to emphasise that not all included reviews focussed on all of the possible outcomes listed in the harvest plot. For instance, overall executive function and working memory were most frequently investigated, whereas fewer reviews included set shifting as a separate outcome (see Table 3).

3.5.3. Executive function

Sixteen reviews examined the impact of childhood trauma on executive function. Of these, two did not report the executive function measures used in the primary studies (Masson et al., 2016; R-Mercier et al., 2018). Between reviews, some categorised measures based on executive function subdomains, whilst others grouped domains together (e.g., attention and processing speed), and others did not split executive function measures into the subdomains they assess. Across reviews, a total of 115 unique measures were reported, most of which (n = 111, 96.52%) are performance-based neuropsychological measures, three (2.61%) self-report measures, and one (0.87%) interview measure. The comprehensiveness of the reporting of executive function measures used seemed to be independent of review quality. A list of all executive

function measures reported, including the number of reviews reporting the measure being used for the respective cognitive domain, can be found in the Supplementary Materials.

Six reviews focussed on non-clinical populations (Irigaray et al., 2013; Masson et al., 2015; Op Den Kelder et al., 2018; Rahapsari and Levita, 2024; Su et al., 2019; Van Der Bij et al., 2020), three of which included a meta-analysis (Masson et al., 2015; Op Den Kelder et al., 2018; Rahapsari and Levita, 2024). These showed that exposure to childhood trauma was consistently associated with lower levels of executive function, mostly indicated by small to medium effect sizes in the meta-analysis (see Table 3). Among childhood trauma subtypes, strongest evidence was found for associations between exposure to emotional abuse and impaired working memory, and emotional neglect and impaired verbal and visual memory (Rahapsari and Levita, 2024; Su et al., 2019).

Seven reviews focussed on clinical populations (Aas et al., 2014; Barczyk et al., 2023; Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025; Masson et al., 2016; R-Mercier et al., 2018; Vargas et al., 2019), four of which included a meta-analysis (Fares-Otero et al., 2025; Masson et al., 2016; R-Mercier et al., 2018; Vargas et al., 2019). The current evidence synthesised from these reviews suggests that among clinical populations, exposure to childhood trauma was negatively associated with general cognitive ability, and executive function, especially the domains working memory, verbal episodic memory, processing speed, attention, visuospatial/problem solving, and inhibitory control, as indicated by small to medium effect sizes, where reported (see Table 3; Aas et al., 2014; Barczyk et al., 2023; Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025; Masson et al., 2016; R-Mercier et al., 2018; Vargas et al., 2019). Results from childhood trauma subtype analyses suggested physical neglect, physical and sexual abuse to be negatively associated with executive function, working memory, and attention (Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025). Emotional neglect was found to be negatively associated

with general cognitive ability and attention, emotional abuse was found to be negatively associated with attention, working memory, and verbal episodic memory (Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025). Amongst CT exposed patients with mood disorders and with psychotic disorders, and schizophrenia and bipolar disorder, poorer global cognitive function and impaired executive function, including the attention, psychomotor and processing speed, and verbal episodic memory subdomains, were consistently observed, as indicated by small to medium effect sizes (Barczyk et al., 2023; Fares-Otero et al., 2025; Masson et al., 2016; Vargas et al., 2019).

The current evidence synthesised from three systematic reviews focussing equally on clinical and non-clinical populations (Goodman et al., 2019; Lund et al., 2022; Rosa et al., 2023) suggests that exposure to childhood trauma was consistently associated with impaired executive function, especially the working memory, inhibitory control, and processing speed domains.

Overall, the results of these included reviews suggest an enduring impact of childhood trauma on executive function. Common themes in recommendations for clinical practice include routinely screening for childhood trauma and cognitive deficits to guide treatment and intervention. A summary of the synthesised findings of the reviews on executive function, split by clinical status, alongside recommendations for clinical practice, are summarised in Table 4.

3.5.4. Impulsivity

Two systematic reviews and meta-analyses examined the impact of childhood trauma on impulsivity. One focussed on non-clinical populations (Liu, 2019), and one focussed on clinical and non-clinical populations (Pérez-Balaguer et al., 2022). The most frequently used measure of impulsivity in the primary studies included in both reviews was the Barratt Impulsiveness Scale (BIS), followed by the UPPS Impulsive Behaviour Scale. All studies measured trait impulsivity, predominately with questionnaire measures. Notably, four studies in Liu (2019) measured impulsivity using performance-based tests, and one study in Pérez-Balaguer et al., (2022) used a semi-structured interview. A detailed table of all impulsivity measures recorded in both reviews is included in the Supplementary Materials.

Overall, the results suggest higher levels of trait impulsivity in individuals exposed to childhood trauma, indicated by medium effect sizes (see Fig. 2). Concerning childhood trauma subtypes, strongest evidence was found for emotional abuse, as indicated by a medium effect size (see Table 3). Common topics in recommendations for clinical practice include routinely screening for childhood trauma, utilising impulsivity as a target for suicide prevention, and using emotion regulation strategies to reduce levels of impulsivity as prevention for the development of future psychopathology. The synthesised findings of the reviews on impulsivity, alongside recommendations for clinical practice, are summarised in Table 5.

3.5.5. Perseverative cognition

Four reviews examined the impact of childhood trauma on rumination and worry. Two systematic reviews focussed on clinical populations (Li et al., 2020; Zhao et al., 2022). One systematic review and one meta-analysis, respectively, focussed on both clinical and non-clinical populations (Mansueto et al., 2021; Miu et al., 2022). Three of the reviews (Li et al., 2020; Mansueto et al., 2021; Zhao et al., 2022) reported on the measures used to assess rumination and worry in the included primary studies, whilst one (Miu et al., 2022) did not. Across reviews, 14 different measures of perseverative cognition were reported. The Ruminative Responses Scale (RRS) was the only measure reported across all reviews and identified as the most commonly used measure of rumination across primary studies. A table detailing all measures reported and the respective frequency of reporting in reviews is included in the Supplementary Materials.

Overall, the results suggest small-to-medium sized increases in rumination and worry in individuals exposed to childhood trauma (see

Table 4

Summary of results and clinical recommendations for executive function.

Phenomena of interest and population	Synthesised findings	Details of clinical recommendations
Executive function difficulties in non-clinical populations	Negative associations were found between CT exposure and: EF, inhibitory control, WM, set-shifting, processing speed, verbal declarative memory and perceptual reasoning, cognitive flexibility, cognitive control, attention, episodic memory. Subtype analysis suggested emotional abuse to be associated with impaired WM; emotional neglect to be negatively associated with impaired verbal/visual memory.	Routinely screen for CT as part of clinical and diagnostic assessments to guide interventions. Target executive function difficulties as a mechanism of change in clinical interventions, also to prevent psychopathology. Individuals exposed to CT may benefit from cognitive remediation therapy to improve daily living.
Executive function difficulties in clinical populations	Negative associations were found between childhood trauma and: GCA, WM, verbal episodic memory, intelligence, processing speed, attention, visuospatial/problem solving, EF, and inhibitory control. Subtype analysis suggested physical and sexual abuse, and physical neglect to be negatively associated with EF, WM, and attention; emotional neglect to be negatively associated with GCA and attention; emotional abuse to be negatively associated with WM, attention, and verbal/visual memory.	Interventions aiming at improving cognition should be developed and implemented as they may lead to better functional outcomes in individuals with CT. Assessing CT and subsequent neuropsychological assessments should routinely be conducted to guide diagnosis, trauma-informed psychotherapy, and cognitive rehabilitation.
Mood disorders	Negative associations were found between childhood trauma and: GCA, EF, attention, psychomotor speed, processing speed, verbal/visual memory.	Routine screening for childhood trauma to identify individual who may benefit from additional support during rehabilitation, e.g., cognitive rehabilitation.
First episode psychosis / psychotic disorders	Negative associations were found between childhood trauma and: GCA, EF, processing speed, WM, verbal/visual memory, attention and processing speed.	To consider the additional cognitive deficits in these conditions in patients exposed to maltreatment.
Schizophrenia and Bipolar Disorder	Negative associations were found between childhood trauma and: GCA, EF, attention, processing speed, and verbal/visual memory. Subtype analysis suggested sexual/physical abuse and physical neglect to be negatively associated with GCA, WM, EF, and verbal fluency; and emotional abuse to be negatively associated with WM.	To consider the additional cognitive deficits in these conditions in patients exposed to maltreatment. Development of trauma-informed interventions encouraged. Assessment of CT and cognition to guide diagnosis and treatment.

Note. CT = Childhood Trauma; EF = Executive Function; GCA: General Cognitive Ability; WM = Working Memory.

Table 5

Summary of results and clinical recommendations for impulsivity.

Phenomena of interest	Synthesised findings	Details of clinical recommendations
Impulsivity	Positive association between CT and trait impulsivity, but not laboratory-based measures of impulsivity. Impulsivity was a significant mediator in the relationship between childhood trauma and suicide behaviour. Concerning CT subtypes, strongest evidence was found for emotional abuse. Meta-analytic findings found stronger associations between childhood trauma and trait impulsivity in clinical (especially affective disorders) compared to community samples.	Impulsivity as a therapeutic target for suicide prevention. Implementation of emotion regulation strategies to reduce impulsive behaviours to in turn reduce psychopathology incidences. Assessment of impulsivity levels to guide therapeutic process.

Note. CT = Childhood Trauma.

Fig. 2), as well as rumination as a mediator between childhood trauma and worse clinical outcomes. Regarding childhood trauma subtypes, strongest evidence was found for emotional and sexual abuse, although this evidence was only narratively synthesised (Mansueto et al., 2021). Common themes in recommendations for clinical practice include routinely screening for childhood trauma, and utilising perseverative cognition as a therapeutic target to reduce symptom severity in clinical populations and to reduce future risk of psychopathology. A summary of the synthesised findings of the reviews on perseverative cognition, split by clinical status, alongside recommendations for clinical practice, are summarised in Table 6.

Table 6

Summary of results and clinical recommendations for perseverative cognition.

Phenomena of interest	Synthesised findings	Details of clinical recommendations
Perseverative cognition in non-clinical populations	CT was found to be associated with increased levels of rumination and worry, especially for the emotional and sexual abuse subtypes for rumination, and sexual and physical abuse subtypes for worry. Rumination was identified as a mediator in the relationship between CT and psychopathology.	Treatment to reduce and cope with rumination and worry in maltreatment exposed populations to reduce the risk of psychopathology, psychopathological symptoms and their severity. Rumination and worry as a therapeutic target recommended.
Perseverative cognition in clinical populations	CT was found to be associated with increased levels of rumination and worry. (Brooding) rumination was identified as a mediator between childhood maltreatment and worse clinical outcomes, e.g., depressive symptoms, suicidal ideation, cognitive complaints, aggression.	Routine assessment of traumatic childhood experiences as part of the therapeutic process encouraged, as well as recognition and assessment of core dysfunctional beliefs resulting from maltreatment.

Note. CT = Childhood Trauma.

4. Discussion

This population-specific umbrella review provides a comprehensive synthesis of the current evidence on the effects of childhood trauma on executive function, impulsivity, and perseverative cognition, by summarising twenty-two reviews including 639 unique primary studies. These relationships were investigated predominantly in adults and included both clinical and non-clinical populations. Due to the high level of heterogeneity between included reviews, a narrative synthesis approach was used to combine and contrast the available evidence. The low primary study overlap, as indicated by the Corrected Covered Area (CAA), supports the independence of findings and indicates that, at least at broad levels, the conclusions are unlikely to be driven by a small subset of primary studies.

This overview of reviews presents evidence for impaired executive function, higher levels of impulsivity, and higher levels of perseverative cognition in individuals exposed to childhood trauma, as indicated by the summary of findings in the harvest plot (see Fig. 2). It is worth noting that although all included reviews found evidence for the enduring impact of childhood trauma on these transdiagnostic risk factors, most reviews identified some contradictory or null findings in their included primary studies. However, this may be explained by high levels of heterogeneity, such as differences in psychiatric pathologies, study design and methodological approach, or sample characteristics. The lack of control for potentially confounding variables, such as types of maltreatment, education level, substance use history, and IQ, may have impacted these results (e.g., Rosa et al., 2023). Further, some reviews identified trivial effects of childhood trauma on some outcomes (e.g., Vargas et al., 2019).

4.1. Executive function

Executive function was the most frequently occurring transdiagnostic risk factor identified from the literature search. Across sixteen reviews investigating the association between childhood trauma and executive function, convincing evidence was found for a negative impact of childhood trauma on executive function. The effects of childhood trauma on executive function tended to be of a small to medium effect. Where reviews indicated smaller effects, these were often a function of the comparator, whereby studies compared individuals with exposure to childhood trauma (and clinical status) to individuals without exposure to childhood trauma (and clinical status). The smaller effects are not necessarily surprising given the detrimental effects of conditions such as bipolar or psychotic disorders on executive function (e.g., Kuswanto et al., 2016; Miskowiak et al., 2024) but are important, nevertheless, as they indicate that childhood trauma can have small detrimental effects over and above psychopathology. Notably, one meta-analysis reported large effects but did not isolate the effect of childhood trauma, comparing individuals with childhood trauma exposure and diagnosis of a psychiatric condition to healthy controls (Masson et al., 2016). Whilst research in this area is yet to delineate the exact mechanisms which connect childhood trauma, executive function impairments, and the development of psychopathology, the findings from clinical and non-clinical samples robustly suggest impaired executive function as a transdiagnostic risk factor for future psychopathology.

4.1.1. Executive function and age

The moderating role of age was inconsistent: some reviews found the impact of childhood trauma on cognitive function generally decreased with increasing age (Masson et al., 2015, 2016; Van Der Bij et al., 2020), another found it increased with increasing age (R.-Mercier et al., 2018), and another found age to not moderate this relationship (Rahapsari and Levita, 2024). Interestingly, two similar systematic reviews, one focussing on child samples and one focussing on adult samples, found similar results with regards to the impact of childhood trauma on executive function ability (Lund et al., 2020, 2022). However, this observed

variability between the review results should be interpreted with caution as high levels of heterogeneity were reported in all reviews. For instance, Masson and colleagues (2015) emphasised that different cognitive domains were investigated in each of the age groups, complicating the comparability of results. Whilst different potential explanations for the effect of childhood trauma on cognition across the lifespan are suggested in these reviews, such as compensatory strategies (e.g., Ellis et al., 2022), the heterogeneity between reviews suggests that more research needs to be conducted investigating the interaction between childhood trauma, age, and executive function.

4.1.2. Clinical samples

The findings from these reviews suggest that across clinical populations, childhood trauma is negatively associated with general cognitive ability and executive function, with consistent evidence for the subdomains working memory, processing speed, and attention. One notable finding was that multiple reviews found trauma-exposed individuals with psychopathology to show similar or even more severe executive function difficulties than those not maltreated with existing psychopathology (Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025; R.-Mercier et al., 2018; Vargas et al., 2019). These findings, albeit shown by typically small effect sizes, suggest that whilst executive function impairments have previously been found to be impacted in psychiatric conditions, such as mood disorders (e.g., Cotrena et al., 2016), childhood trauma uniquely contributes to these impairments. A possible explanation for this finding could be that childhood trauma severity impacts individuals with psychopathology differently to individuals without psychopathology, and impairments might only become evident following severe childhood trauma, perhaps due to higher levels of resilience (Teicher et al., 2020). Indeed, a neuroimaging study found differences in grey matter volume in bipolar disorder and schizophrenia only in participants with high levels of childhood trauma, suggesting a different impact depending on childhood experiences (Poletti et al., 2016).

4.2. Impulsivity

It is worth noting that the current paper found only two systematic reviews investigating the impact of childhood trauma on impulsivity (Liu, 2019; Pérez-Balaguer et al., 2022). Results of the synthesis suggest that childhood trauma is positively associated with trait impulsivity, as well as impulsivity acting as a mediator between childhood trauma and suicide vulnerability. However, this data must be interpreted with caution as only limited evidence was available, as well as one meta-analysis' findings being impacted by 92.41% of the total sample coming from one primary study (Pérez-Balaguer et al., 2022). The limited evidence in this area highlights the need for future research efforts to be dedicated to including impulsivity in investigations with individuals of childhood trauma, both in primary and review studies, as the evidence highlighted here is suggestive of an enduring impact of childhood experiences on levels of impulsivity.

4.3. Perseverative cognition

Four systematic reviews and meta-analysis investigating the relationship between childhood trauma and perseverative cognition were included in this review (Li et al., 2020; Mansueto et al., 2021; Miu et al., 2022; Zhao et al., 2022). In both clinical and non-clinical populations, childhood trauma was found to be associated with increased levels of rumination and worry. Notably, two reviews identified rumination as a significant mediator in the relationship between childhood trauma and psychopathology, suggesting that exposure to childhood trauma leads to worse clinical outcomes, mediated by higher levels of rumination. This emphasises the role of rumination as a transdiagnostic risk factor for the development and perpetuation of depression and other forms of psychopathology. Indeed, a recent experimental study has found

rumination to mediate the relationship between childhood trauma and mental well-being (Burni et al., 2025).

4.4. Childhood trauma

It is worth noting that whilst the included reviews and their respective primary studies used a variety of terms for childhood trauma (e.g., childhood maltreatment, childhood adversity, early life stress), most studies define these in the same way, i.e., the five childhood trauma subtypes. However, across included reviews, high levels of heterogeneity were found in the reporting and measuring of childhood trauma. Indeed, a recent Delphi study emphasised the need for a clear and consistent definition of childhood trauma for research (Cowley et al., 2025).

4.4.1. Childhood trauma sub-types

It is important to emphasise that fewer reviews, and their respective primary studies, included separate analyses on childhood trauma subtypes than for overall childhood trauma. Nevertheless, some reviews were able to identify differences between childhood trauma subtypes. For example, several reviews found physical subtypes (physical abuse and neglect) to be most strongly associated with worse executive function (Dauvermann and Donohoe, 2019; Fares-Otero et al., 2025; Rosa et al., 2023). Another review found both the physical and emotional neglect subtypes to be most strongly related to poorer executive function (Su et al., 2019). Similarly, two other reviews found the emotional abuse subtype to show the most consistent association with impulsivity and emotional and sexual abuse with rumination, respectively (Liu, 2019; Mansueto et al., 2021). It has been suggested that childhood emotional abuse is the most prevalent and chronic childhood trauma subtype, as well as presenting most frequently alongside other forms of abuse and neglect, and has hence been proposed to be the most impactful on the victims cognitive development, due to its ensuing chronic stress exposure (Glaser, 2002; Stoltenborgh et al., 2012, 2015). This may explain why some reviews have found this subtype to yield the strongest impact on cognitive function. However, it is not possible to ascertain with these existing data whether different childhood trauma subtypes, or indeed their cumulation, have different effects on executive function. Hence, future studies ought to differentiate between kinds of maltreatment, as well as consider the onset, length, and co-occurrence of childhood trauma subtypes. The complexity of this comprehensive approach to childhood trauma research calls for longitudinal cohort studies to be conducted to identify the causal inferences between childhood trauma and cognition (McKay et al., 2021).

Interestingly, studies focussing on overall childhood trauma found stronger associations than studies focussing on individual subtypes but the effects in the latter were more heterogeneous (Dauvermann and Donohoe, 2019; Lund et al., 2022; Mansueto et al., 2021; Rosa et al., 2023). Individuals often have more than one kind of childhood trauma, as co-occurrence of traumatic events is common, leading to exaggerated effects when looking at overall exposure compared to subtypes (Green et al., 2010; Kessler et al., 2010; Smith and Pollak, 2021). Future studies therefore ought to investigate both subtypes and overall childhood trauma, adjust for co-occurring exposure in the analysis, as well as record the severity, frequency, and timing of childhood trauma exposure, as the temporal windows of neural development might be differentially impacted by childhood trauma and might lead to different cognitive sequelae later in life (Casey et al., 2000; Petrican et al., 2017). This would assist in the identification of individuals most at risk for developing negative outcomes and could have the potential to inform personalised treatment approaches.

4.5. Overall completeness and applicability of evidence

The lack of reviews on impulsivity and perseverative cognition highlight an important gap in the review literature, especially because

the latest reviews on these topics identified were published in 2022. This is emphasised by recent literature identifying both impulsivity and rumination and worry as important transdiagnostic risk factors for psychopathology and suicide (e.g., [Birni et al., 2025](#); [Rogerson et al., 2024](#)). Hence, the completeness of the evidence presented here cannot be guaranteed and may not represent the current state-of-the-art research findings. This is a common limitation of umbrella reviews.

4.6. Quality of the evidence

This umbrella review critically appraised the quality of included evidence syntheses using the AMSTAR 2 checklist. Most studies were of at least medium quality, however the inclusion of detail regarding the excluded studies and funding sources of included studies was rare. Whilst four studies did not assess the quality of included studies at all ([Aas et al., 2014](#); [Dauvermann and Donohoe, 2019](#); [Irigaray et al., 2013](#); [Lund et al., 2022](#)), and four only used a statistical measure (i.e., Orwin's fail-safe N, Egger's regression intercept, funnel plot) in their meta-analysis to assess bias in included primary studies ([Liu, 2019](#); [Masson et al., 2015, 2016](#); [R-Mercier et al., 2018](#)), all other studies assessed the quality of primary studies, although there was a degree of inconsistency in the discussion of quality assessments present. Importantly however, the direction of results did not differ depending on review quality, suggesting that the conclusions drawn from this umbrella review are robust.

4.7. Recommendations for future research

Based on the evidence reviewed, multiple suggestions for future research can be made. First, future studies ought to elucidate the developmental and neurobiological mechanisms between childhood trauma and later cognitive difficulties to give rise to sensitive and critical periods, which could prove essential in the development of prevention strategies ([Samson et al., 2024](#)). Multi-centred longitudinal cohort studies are needed to identify these mechanisms with a detailed focus on types, timing, and length of exposure to childhood adversity. Limited and mixed results were observed for childhood trauma subtypes, particularly due to the heterogeneity observed in the reporting of the reviews and the analysis of the respective primary studies. Including subgroup analysis in future reviews and experimental studies is recommended to give light to the potential differential impact of childhood trauma subtypes and their interactions. Good examples of this were observed in two of the included reviews, which also satisfied a large proportion of the AMSTAR 2 criteria ([Fares-Otero et al., 2025](#); [Rosa et al., 2023](#)). Second, future studies should establish/use core outcome sets to minimize heterogeneity across studies and the risk of selective outcome reporting within studies. Third, determining whether the effects of childhood trauma on executive function, impulsivity, and perseverative cognition found in the present review are clinically meaningful, i.e., have a direct impact on the development of psychopathology, clinical outcomes, or interact with the clinical presentation of psychological disorders, merits empirical attention. This would benefit professionals developing therapeutic interventions targeted to these vulnerable individuals ([Dal Santo et al., 2020](#)).

4.8. Recommendations for clinical practice and interventions

The present umbrella review has several implications for clinical practice. First, the results suggest that routinely screening for childhood trauma within initial clinical assessments could provide insights into individuals' potential cognitive impairment and, in turn, inform personalised treatment plans. These could include trauma-focused cognitive behavioural therapy (TF-CBT), which has been found to be effective for trauma-exposed individuals, and has positive effects on executive function difficulties in individuals exposed to childhood trauma ([M. Landolt et al., 2017](#); [Lee, 2020](#)). These findings also suggest that

interventions designed to mitigate the adverse effects of childhood trauma should include components targeting modifiable risk factors such as worry and rumination. Strategies such as action planning, mindfulness, and psychological detachment ([McCarrick et al., 2021](#)), as well as acceptance and commitment-based approaches (e.g., [Prudenzi et al., 2021](#)) can reduce worry and rumination.

Second, based on the findings of this review, clinicians should be mindful of how they approach a consultation with patients with childhood trauma, as the potential deficits in attention, processing speed, and working memory might make the individual more likely to misunderstand or be overwhelmed by information. Hence, clinicians are urged to consider these potential deficits and alter their communication accordingly, for instance by repeating information, talking more slowly, or checking the patients' guidance comprehension ([Goldstein et al., 2017](#); [Layne et al., 2014](#); [Strauch et al., 2022](#)). Trauma-informed clinical communication skills guidelines continue to be developed and are urged to be incorporated into national guidelines for clinicians, for instance in the UK National Institute for Health and Clinical Excellence (NICE) guidelines ([NICE, 2011](#); [Thang et al., 2024](#)).

Third, the results suggest that childhood trauma exposure is associated with working memory difficulties. Eye Movement Desensitization and Reprocessing (EMDR) therapy is commonly used for the treatment of post-traumatic stress disorder ([Davidson and Parker, 2001](#)) but the intervention requires a high cognitive load (i.e., has a high task demand and effort for working memory) to work effectively; hence, it may not be as successful in individuals with childhood trauma ([Cuijpers et al., 2020](#); [Landin-Romero et al., 2018](#); [Op Den Kelder et al., 2018](#)). Given the negative impact of childhood trauma on executive function and its relevance for many skills taught in therapies, such as cognitive restructuring and self-monitoring of thoughts in cognitive behavioural therapy ([Beck, 2021](#); [Cristofori et al., 2019](#); [S. J. Gilbert and Burgess, 2008](#); [Goodman et al., 2019](#)), clinicians may need to adjust the treatments to help clients engage with cognitively demanding therapies. In addition, the results of the current review could also explain why childhood trauma exposed individuals with mood disorders respond more poorly to commonly used treatments compared to individuals without trauma exposure, leading to a more pernicious disease trajectory and an increased risk for suicide vulnerability ([Lippard and Nemeroff, 2020](#); [Teicher and Samson, 2016](#)).

Fourth, the results support the early identification of at-risk individuals, e.g., in schools, when interventions should focus on reducing the impact of childhood trauma on the development of cognitive deficits, impulsivity, and perseverative cognition, and reducing psychopathology risk in the future.

4.9. Recommendations for policy makers

The presented evidence suggests an enduring impact of childhood trauma on cognition, which in turn may increase the risk of the development and maintenance of psychopathology. Hence, it is of upmost importance for policymakers to acknowledge childhood trauma as a public health concern, identify those most at risk and prioritise funding the development of prevention programs ([Chafouleas et al., 2019](#); [Lambert et al., 2017](#)). Primary prevention of childhood abuse in the form of home visits, parental education and child sexual abuse prevention has been shown to be effective in reducing the risk for child maltreatment and are therefore recommended as targets for future research investments ([Mikton and Butchart, 2009](#)). In addition, as childhood trauma evidently negatively affects cognitive function and psychopathology, it is important to identify those maltreated as early as possible to mitigate the impact of trauma on the individual and reduce the occurrence of childhood trauma, for instance with primary prevention in the form of early psychoeducational programs, trauma-informed mental health support services for youth, parenting support, or social service referrals ([Jorm and Mulder, 2018](#); [Marie-Mitchell and Kostolansky, 2019](#); [Yap et al., 2016](#)).

4.10. Limitations

The findings presented in this umbrella review should be considered in light of some limitations. First, umbrella reviews have an inherent bias as they are built on reviews that may contain limitations such as errors in data extraction and study appraisals and search strategies that limit to specific language (typically English) or publication type (typically published, peer reviewed journals). Second, the results of the present review, and indeed any umbrella review, are temporally limited as there is a delay in the synthesis of novel evidence, as these studies need to be conducted, published, and then included in a relevant review prior to inclusion in an umbrella review. Third, the inclusion and comparison of reviews with varying definitions of childhood trauma and varying outcome measures may lead to interpretative biases, for instance in the over generalisability of the executive function domain results or the use of overall childhood trauma, when some results may only be valid for subtypes. This bias could be present both at the level of individual evidence syntheses and could be amplified in the review of reviews. Fourth, given the heterogeneity, isolating clear patterns across reviews or even within reviews can be challenging. Confounds between age and measure type (see review by [Masson et al., 2015](#)), for example, illustrates the issue at the primary review level and these confounds are complicated further at the level of umbrella review. Fifth, most primary studies included in these reviews were cross-sectional, which means that no causal relationships can be inferred based on these results alone, and only provide some information on potential prospective paths ([Maxwell et al., 2011](#)). Interestingly, Rosa and colleagues (2023) found the results from longitudinal studies to not differ from those of cross-sectional studies, although these only account for 10.8% of papers included in their review. Other reviews including longitudinal studies found similar patterns (e.g., [Li et al., 2020](#); [Miu et al., 2022](#)).

5. Conclusion

To our knowledge, this is the first umbrella review to synthesise the current evidence on the associations between childhood trauma, executive function, impulsivity, and rumination and worry. This review provides an enhanced understanding of these relationships, which may aid the development of prevention strategies and therapeutic targets for psychopathology and suicide vulnerability. The presented synthesis suggests the enduring impact of childhood trauma on cognition, manifesting as impaired executive function, higher levels of impulsivity and perseverative cognition. Evidence from included reviews highlights the importance of assessing childhood trauma and cognition in clinical assessments to guide therapy and interventions, as well as the need for the development of early interventions for individuals-at-risk to improve functional outcomes and reduce the risk of development of psychopathology.

CRediT authorship contribution statement

Sophie Höfels: Conceptualization, Methodology, Formal analysis, Data Curation, Writing – Original Draft, Writing – Review & Editing, Visualization, Project administration. **Ellen Frost:** Data Curation. **Andrew Prestwich:** Conceptualization, Methodology, Formal analysis, Writing – Review & Editing, Supervision. **Daryl B. O'Connor:** Conceptualization, Methodology, Formal analysis, Writing – Review & Editing, Supervision.

Funding information

This research was conducted as part of a funded PhD project at the University of Leeds (Thomas Ward Scholarship).

Conflict of Interest

No potential conflict of interest is reported by the authors. No AI tool was used to generate any part of the paper.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.neubiorev.2026.106818](https://doi.org/10.1016/j.neubiorev.2026.106818).

Data Availability

See [Supplementary Materials](#). A list of all excluded studies can be requested from the main author.

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