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Review

THE ROLE OF EMOTIONS IN THE RELATIONSHIP BETWEEN CHILDHOOD TRAUMAS AND CHRONIC PAIN IN ADULTHOOD: A SCOPING REVIEW

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SUMMARY

While the relationship between post-traumatic stress disorder (PTSD) and chronic pain is increasingly highlighted, the link between childhood traumas (CT) and chronic pain in adulthood remains underexplored. Yet, it is well established that early adverse experiences (ACES) are more damaging than those experienced later in life due to ongoing neurological and psychological development. Furthermore, survivors of childhood traumas may develop more complex and multifaceted reactions than those observed in PTSD, potentially leading to Complex PTSD (CPTSD). A scoping review was conducted to explore the association between childhood traumas and chronic pain in adulthood, with a focus on identifying the psychological and biological mechanisms involved. Following PRISMA-ScR guidelines, 20 peer-reviewed articles were selected and thematically analyzed. Inclusion criteria covered empirical studies involving adult populations, published between 2005 and 2025. A strong association was found between cumulative ACEs and chronic pain, which supports the additional impacts of CPTSD compared to PTSD in chronic pain. Only three studies included focused on the specific impact of each CT and showed that emotional neglect and emotional abuse had the most persistent impact. Key mechanisms mainly included central sensitization, emotional dysregulation and affective disorders. Further studies are needed to investigate the differential impact of each childhood trauma type, including emotional neglect and abuse, and various pain conditions. These findings support the hypothesis of a specific emotional pathway from early adversity to pain chronification.

Key words: *childhood traumas – emotional maltreatment - chronic pain – emotion regulation - CPTSD*

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INTRODUCTION

Childhood trauma (CT) is a major public health issue, defined as an event or series of events perceived as physically or emotionally harmful, with lasting adverse effects on an individual's well-being or functioning (SAMHSA, 2014). Interpersonal trauma - occurring within close relationships and often involving repeated abuse, neglect, or violence - carries particular significance due to the betrayal of trust and disruption of emotional security (Courtois & Ford, 2009; Freyd, 1996). This type of trauma includes eight core forms experienced before age 18: physical, sexual, and emotional abuse; physical and emotional neglect; family dysfunction; domestic violence; and parental loss or separation. Such experiences, often chronic and occurring during sensitive developmental periods, are associated with long-term impairments in emotional regulation, attachment, identity, and intersubjectivity (Herman, 1992; van der Kolk, 2005), and are central to explanatory models of complex post-traumatic stress disorder (C-PTSD) in the ICD-11 (WHO, 2019).

The concept of Adverse Childhood Experiences (ACEs) is frequently used in literature to encompass these same traumatic exposures, including abuse, neglect, and household dysfunction (Felitti et al. 1998). ACEs are linked to a higher risk of both chronic physical illnesses and mental disorders in adulthood (Dye, 2018). Childhood traumas classified among two types: maltreatment by commission, including physical, psychological and sexual abuse, involves an act or behavior that causes actual or potential harm or the threat of harm, maltreatment by omission, including emotional and physical neglect, results from a failure to act or a lack of environmental input (McLaughlin et al. 2014).

Childhood trauma, especially emotional neglect (EN), has been identified as a strong predictor of negative long-term health outcomes (Glaser, 2002; Dye, 2018). EN refers to a consistent failure to meet a child's basic emotional needs - such as affection, support, and a sense of belonging - often resulting in emotional unavailability from the caregiver (Crittenden, 1999; Glaser, 2002; Paquette et al. 2004).

Chronic pain (CP) is an "unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (Mersky & Bogduk, 1994, p.209-214). It significantly impairs daily functioning (Dueñas et al. 2020) and is a leading cause of disability (Wu et al. 2020). It is subsumed under the category of "somatic symptom and related disorders" (SSDs) in the Diagnostic and Statistical Manual of mental disorders (DSM-5-TR) (APA, 2022). However, the International Statistical Classification of Diseases and Related Health Problems (ICD-11) uses the diagnostic label "chronic primary pain," which is identified when pain is persistent, longer than 3 months, associated with significant emotional distress and/or functional disability (Nicolas et al. 2019). CP is highly prevalent in the general population, with a recently estimated point prevalence rate of 33% worldwide (Jackson et al. 2015).

While the connection between Post-Traumatic Stress Disorder (PTSD) and chronic pain becomes increasingly established, the link between childhood trauma and adult chronic pain (CP) remains underexplored (Karimov-Zwienenberg et al. 2024).

As described by Bussieres et al. (2023), estimates of associations between ACEs and chronic pain conditions are lacking. However, childhood traumas are more damaging than adult trauma due to ongoing neurological and psychological development (DeBellis et al. 2014). Indeed, trauma in early life also disrupts biological systems involved in stress response and pain modulation, particularly the hypothalamic-pituitary-adrenal (HPA) axis. Dysregulation of this system can impact pain regulation and lead to heightened pain sensitivity (Burke et al. 2019). In addition, exposure to a chronic or repeated childhood trauma, especially within attachment relationships, may lead to complex PTSD (CPTSD), which includes additional symptoms beyond PTSD, such as emotional dysregulation, negative self-concept, and relational difficulties (ICD-11). Furthermore, metanalysis show that, not only did individuals with a history of childhood maltreatment have higher rates of chronic pain in adulthood, but in separate samples of adults with chronic pain, childhood maltreatment was overrepresented (Dutcher et al. 2024).

Moreover, numerous studies mentioned the need to understand the biological and psychological mechanisms by which ACEs influence health and disease throughout the lifespan, more specifically in chronic pain in adulthood (Bussieres et al, 2023; Karimov-Zwienenberg, 2024).

The primary aim of this scoping review is to systematically map existing evidence on the relationship between childhood traumas and chronic pain in adulthood. Secondary objectives include identifying the specific types of traumas most strongly associated with chronic pain, and the underlying psychological and biological mechanisms mediating this relationship.

METHOD

A scoping review was conducted following the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guidelines (Tricco et al. 2018).

The search strategy was implemented in May 2025 using Boolean logic across PubMed, PsycINFO, and Scopus databases, with combinations of terms such as: "childhood trauma," "adverse childhood experiences," "early life stress," "child abuse," "chronic pain," and "adult." Search results were limited to English and French language peer-reviewed empirical studies published between 2005 and 2025.

All empirical studies and systematic reviews of journal articles involving adults published between 2005 and 2025 were eligible.

Exclusion criteria applied to studies not explicitly examining the link between childhood trauma and adult chronic pain.

Initial screening identified 35 articles, of which 32 remained after duplicate removal. After title and abstract screening, 20 articles were retained for full-text assessment and inclusion. Two authors independently screened titles, abstracts, and full texts.

A PRISMA flow diagram summarizing the study selection process is presented in Figure 1.

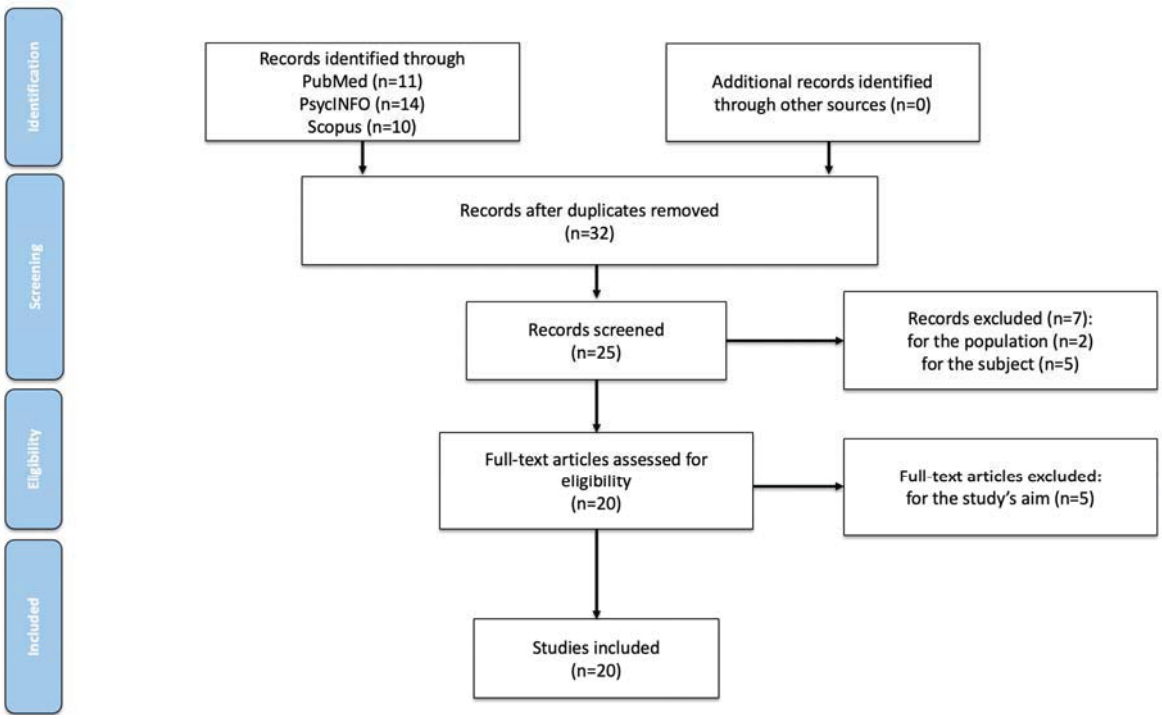

Figure1. Flow Diagram (PRISMA)

Table 1. Characteristics of included studies

Authors (Year)	Study Type	Population	Pain Type	Comments
Schaulch et al. (2022)	Cross-sectional phenome-wide association	Northern Nevada adult volunteers	Chronic pain (self-reported)	Phenome-wide survey; includes migraine and other pain phenotypes.
Walton et al. (2021)	Cross-sectional survey	Adults with acute musculoskeletal (MSK) injury	MSK trauma-related pain	Clinical sample with MSK injury.
You et al. (2019)	Cross-sectional	Undergraduate university students	Back pain, headache, dysmenorrhea	
Fowler et al. (2020)	Population-based cross-sectional	Nationally representative Ukrainian adults	Chronic pain	National probability sample (WMH-CIDI).
Häuser et al. (2019)	Cross-sectional survey	German general population	Chronic non-cancerous pain	Large probability sample; Chronic Pain Grade used.
Sweeney et al. (2015)	Cross-sectional survey	Adults with psychosis	Chronic pain and headaches	Clinical psychosis sample; pain self-reported.
Nimbi et al. (2024)	Cross-sectional	Women with fibromyalgia	Fibromyalgia	Clinical sample
Karas et al. (2017)	Cross-sectional postal survey	Women with fibromyalgia in Finland	Fibromyalgia	Random population sample (HeSSup)
Thomas et al. (2024)	Cross-sectional observational	Adults with chronic low back pain (N=183)	Chronic low back pain	Clinical cohort baseline.
Moussaoui et al. (2022)	Systematic review	Adolescents and young adults women	Pelvic pain, dysmenorrhea, dyspareunia	Analyzed 19 studies
Macedo et al. (2019)	Clinical comparison	Depressed adults patients	General chronic pain	
Brown et al. (2005)	Epidemiological cross-sectional	Community sample (young adults, n=649)	Functionally-impairing chronic pain	Random cohort
Karimov-Zwienenberg et al. (2024)	Systematic review	Adults with chronic pain across various clinical settings	Chronic pain outcomes with PTSD/CPTSD link	13 studies included
Dickens et al. (2023)	Cross-sectional urvey	African-American Adults with chronic pain	Pain intensity and pain interference	
Dalechek et al. (2024)	Systematic review and Meta-analysis	Adults (≥18) with chronic pain (mixed samples, N studies=52)	Chronic pain	
Daily et al. (2022)	Cross-sectional survey	Midlife and older community adults	Daily physical symptoms (e.g., headache, chest pain)	Evaluated ACEs × daily symptom reactivity; used diary method over 8 days.
Johnson et al. (2020)	Cross-sectional urvey	Community dwelling adults (MIDUS sample)	Chronic pain (self-reported, ≥ 3 months)	Representative U.S sample
Yeung et al. (2016)	Cros-sectional clinical survey	Adults with chronic pain	Chronic pain (e.g., burn pain, back pain)	Clinical sample; Includes QST and psychological measures related to ACEs.
Antoniou et al. (2019)	Meta-analysis (neuroimaging focus)	General population across multiple countries	Multiple chronic pain outcomes	A total of 49 studies, including 6 studies that specifically addressed chronic pain.
Bussières et al. (2023)	Systematic review and Meta-analysis	Mixed datasets (RCTs, cohorts, surveys)	Multiple chronic pain outcomes	A total of 85 studies on chronic pain and functional limitation were reviewed; 57 studies were included in the main quantitative analyses.

RESULTS

To provide a comprehensive overview of the literature, Table 1 presents a summary of the 20 studies included in this scoping review, which employed diverse methodologies and targeted various populations.

Most studies used a (standard or adapted) ACEs questionnaire, or asked yes/no questions. Only three used the Childhood Trauma Questionnaire (CTQ) (Bernstein et al. 1994).

Based on thematic synthesis, the results are organized into six categories: (1) Cumulative ACEs as a Key Factor in Chronic Pain in Adulthood, (2) Childhood Trauma and Chronic Pain in Different Populations, (3) Complex PTSD and Pain Chronification, (4) The effect of each childhood trauma: the specific role of emotional maltreatment (5) Pain Typologies, (6) Biological and Psychological Mechanisms Involved.

Cumulative ACEs as a key factor in chronic pain in adulthood

Most studies in this review highlighted the role of cumulative childhood trauma in chronic pain in adulthood. Indeed, several studies found a dose–response relationship between the number of ACEs and the risk of developing CP in adulthood (Bussieres et al. 2023; Fowler et al. 2020; Schlauch et al. 2022; You et al. 2019). For example, a large-scale study of the adult Ukranian population (n=4725) found that individuals who had experienced three or more ACEs were more likely to suffer from CP in adulthood (Fowler et al. 2020). In addition, You et al. (2018) reported that cumulative ACEs significantly predicted chronic back pain, headache, and dysmenorrhea, even after controlling for different ACEs such as physical, emotional and sexual traumatic events in young adults. Similarly, Daily et al. (2022) found that a higher number of ACEs was associated with greater sleep disturbances, depressive symptoms, and perceived injustice in adults with CP. These findings suggest that cumulative ACEs may be a more relevant risk factor for CP conditions than the experience of a specific type of adverse event (You et al. 2018). In their recent systematic review, Bussières et al. (2023) indicated that the risk of reporting chronic painful disorders increased with increasing numbers of ACEs. More specifically, exposure to ACEs, alone or in combination with indirect ACEs, significantly increased the risk of CP in adulthood and pain-related disability, and the risk of chronic pain in adulthood increased significantly between one ACE (and four or more ACEs (Bussieres et al. 2023). Then, Antoniou et al. (2023) reported that individuals exposed to multiple ACEs were at increased risk of developing both CP and depression. Taken together, these findings suggest that the cumulative burden of childhood adversity may be a stronger and more consistent predictor of CP outcomes in adulthood than any single type of CT. However, we will see in the section (4) hat the recent systematic review by Karimov-Karimov-Zwienenberg et al. (2024) and other studies qualify this by indicating that the nature of CT may also play a role in adult CP.

Childhood Trauma and Chronic Pain in Different Populations

Beyond the general population (Fowler et al. 2020; Yeung et al. 2016), the association between childhood trauma and chronic pain has also been observed in various clinical populations, such as individuals with borderline personality disorder (Johnson et al. 2020), fibromyalgia (Karas et al. 2017; Yeung et al. 2016), depression (Macedo et al. 2019) and psychotic disorders (Sweeney et al. 2015). Additionally, Walton et al. (2021) found that childhood adversity influenced threat appraisal and distress after injury, with significant consequences on pain interference, especially in men.

Complex PTSD (C-PTSD) and Pain Chronification

The recent systematic review of Karimov-Zwienenberg et al. (2024) highlighted the specific role of complex PTSD (C-PTSD) in chronic pain in adulthood. These authors reported that C-PTSD was more closely related to persistent pain than PTSD (Karimov-Zwienenberg et al. 2024) and they described overlapping symptomatology between C-PTSD (e.g., dissociation, affective dysregulation) and pain (Karimov-Zwienenberg et al. 2024). Two of the studies reviewed assessed complex PTSD in addition to PTSD provided evidence of comorbidity between complex PTSD and chronic pain, but these studies only assessed childhood sexual abuse (Karimov-Zwienenberg et al. 2024). Then, the study of Johnson et al. (2020) supports that by showing that trauma in adulthood did not predict pain outcomes, unlike childhood trauma, which played a predictive role in chronic pain in adulthood.

The effect of each childhood trauma: the specific role of Emotional Maltreatment

Only five articles included in this review examined the individual impact of different types of childhood trauma on chronic pain in adulthood, with most limiting themselves to measuring the cumulative impact. Only three studies examined all trauma types, including physical, sexual, emotional abuse, and physical and emotional neglect, while the others limited themselves to measuring childhood trauma involving physical and sexual abuse or physical neglect.

Studies examining each trauma type highlighted the specific long-term effects of emotional neglect (EN) and emotional abuse (EA), as opposed to physical and sexual abuse (Karimov-Zwienenberg et

al. 2024; Yeung et al. 2016). To begin, Karimov-Zwienenberg et al. (2024) showed that, except for one study, all studies included in their review (n=13) reported childhood trauma in terms of maltreatment, demonstrating higher prevalence and severity for emotional abuse and emotional neglect compared to other forms of childhood maltreatment in individuals reporting chronic pain. Then, Macedo et al. (2019) found that emotional neglect was more prevalent among individuals with comorbid depression and chronic pain. Their data suggested emotional neglect may increase chronic pain risk nearly fourfold in depressive patients Additionally, greater exposure to emotional and physical abuse, and to emotional and physical neglect, was significantly associated with more severe depressive symptoms (Macedo et al. 2018). The study by Yeung et al. (2016) highlighted the specific role of emotional neglect during childhood in chronic daily pain in adulthood suffering from fibromyalgia, mediated by various variables presented in the following section (6).

In studies not covering all types of childhood traumas, the role of emotional abuse and sexual abuse was highlighted in adult chronic pain. In the context of fibromyalgia, emotional abuse was primarily associated, followed by physical neglect and physical abuse. (Karas et al. 2017). Then, Brown et al. (2005) reported an association between self-reported sexual abuse history and adult pain complaints in this general population sample, which was not attributable to symptoms of depression at the time of such reports (Brown et al. 2005). In the first study, emotional neglect was not part of the associated childhood traumas, and the second study did not distinguish between emotional neglect and physical neglect and did not examine psychological abuse.

Finally, one study measured physical threat during childhood to directly refer to the experience of physical pain and death (even if only imagined), which does not only concern violent acts perpetrated by an aggressor, but also illnesses or accidents that threatened the person's integrity.

Pain Typologies

In this review, most articles limited themselves to measuring chronic pain in general terms. However, a subset investigated specific pain types, and one study examined various pain conditions for which associations with childhood trauma could be more precisely established.

First, ACES was a predisposition factor for disabling non-cancerous chronic pain in adulthood (Haüser et al. 2019) and for intensity of pain (Karas et al. 2019). Then, Johnson et al. (2020) reported that childhood traumas were associated with different types of chronic pain in adulthood: affective pain, central sensibilization, and intermittent pain (p=0.001) in adulthood. CT remained a predictor of affective pain regardless of BPD symptoms (Johson et al. 2020). Furthermore, the study of Dickens et al. (2023) showed that ACEs are linked to pain interference (an impact on daily function) and pain intensity (sensory and affective). In the systematic review of Moussaoui and Grover (2022), an association between sexual abuse and pelvic pain and dyspareunia in young adults. Thomas et al. (2024) presented an association between childhood adversity and movement-evoked pain in low back pain patients (Thomas et al. 2024) and Walton et al. (2021) between childhood adversity and general musculoskeletal pain.

The study by You et al. (2019) is the only study to have specifically examined various pain conditions. It found that cumulative ACEs were significantly associated with chronic back pain, headaches, and dysmenorrhea. However, no significant associations were found between ACE exposure and the presence of comorbid pain conditions (i.e., multiple concurrent pain types), suggesting that while childhood adversity predicts discrete pain outcomes, it may not necessarily increase the risk of experiencing pain in multiple bodily locations.

Biological and Psychological Mechanisms Involved

A consistent body of evidence across the included studies highlighted multiple biological and psychological mechanisms through which ACEs may contribute to the development and maintenance of CP in adulthood.

Biological mechanisms

The central sensitization mechanism was highlighted by studies of Johnson et al. 2020) and Nimbi et al. (2024). In the latter, CT and psychological factors predicted central sensitization in fibromyalgia (Nimbi et al. 2024) showed that physical threat during childhood played a role in the process of central sensitization in patients with fibromyalgia, by decreasing sensory thresholds (Nimbi et al. 2024).

Moreover, Yeung et al. (2016) reported the specific role of cortisol in the relationship between childhood emotional neglect and CP in adulthood. Cortisol dysregulation mediated the link between maltreatment and pain/emotional symptoms among individuals with fibromyalgia (Yeung et al. 2016). Childhood neglect was associated with a flattened diurnal cortisol profile, which, in turn, was linked to increased daily pain and emotional symptoms. Cortisol dysregulation partially mediated the association between neglect and symptom severity. The authors thus concluded that early maltreatment may produce enduring alterations in endocrine functioning, thereby contributing to heightened pain and emotional symptomatology in individuals with CP disorders (Yeung et al. 2016). In their systematic review, Karimov-Zwienenberg et al. (2024) highlighted the recommendations of different authors concerning the need to identify mediating or moderating factors on the

CT–HPA axis dysregulation relationship in CP, using psychophysiological measures. In addition, they suggested some evidence pointed to dysregulation in pain modulation systems, including altered cortisol levels and reduced pressure pain thresholds, particularly in patients with both CP and PTSD. These neurophysiological differences appeared to be associated with trauma-related patterns of hyperarousal. (Karovimov-Zwienenberg et al. (2024). Furthermore, the systematic review and meta-analysis of Antoniou et al. (2023) suggested a shared neural correlates for comorbidity and possibly increasing the vulnerability to develop later in life depression, CP, or both (Antoniou et al. 2023). Functional and structural brain abnormalities were identified in the superior frontal, lingual gyrus, hippocampus, insula, putamen, superior temporal, inferior temporal gyrus, and anterior cerebellum in patients with major depression disorder (MDD) exposed to adverse childhood experiences (Antoniou et al. 2023). In addition, brain function abnormalities were identified for patients with MDD or chronic pain and exposure to ACEs in the cingulate gyrus, inferior parietal lobule, and precuneus in task-based functional MRI studies (Antoniou et al. 2023). A suggested mechanism discussed by You et al. (2018) was allostatic load - a state in which prolonged stress responses dysregulate physiological systems such as the endocrine, immune, and nervous systems - to explain the link between ACEs and CP in adulthood, although this was not empirically tested in their study.

Psychological mechanisms involved

Emotion dysregulation was the most common mediator. Thomas et al. (2024) found that difficulties in emotion regulation mediated the relationship between ACEs and both resting and movement-related pain in chronic low back pain. Walton et al. (2021) demonstrated that ACEs contributed to pain-related distress via threat appraisal. ACEs influence pain via threat appraisal and distress (Walton et al. 2021). Thus, Thomas et al. (2024) and Walton et al. (2021) showed that individuals with high ACE exposure had greater difficulties regulating emotions, which in turn was associated with increased pain severity and distress. Furthermore, Dalechek et al. (2024) reported mediating role of anxiety between ACEs and CP, while Daily et al. (2022) reported that adults with high ACE scores also displayed higher levels of sleep disturbance, depression, and perceived injustice, factors known to worsen pain outcomes. The study of Dickens et al. (2023) found pain catastrophizing mediated the link between adversity and pain severity. The study of Macedo et al. (2018) showed that severity of the depressive symptoms had a significant impact on the total score of CT, emotional abuse, physical abuse, emotional neglect, and physical neglect, and that emotional abuse, sexual abuse, and physical neglect had significant impact on the severity of depression (Macedo et al. 2018). The last psychological mechanism highlighted by this review is somatoform dissociative symptoms. These latter, which are common in fibromyalgia patients, may contribute to the onset or worsening of pain (Karas et al. 2017). The authors thus emphasize that taking dissociative symptoms into account plays an important role in the treatment of fibromyalgia patients who have a frequent history of CT. Indeed, they suggest thus that the treatment of these patients should therefore be carried out in collaboration with psychiatrists (Karas et al. 2017). The neurophysiological differences reported by (Karovimov-Zwienenberg et al. (2024) appeared to be associated with dissociation patterns, which supports the study by Karas et al. (2017) (Figure 2).

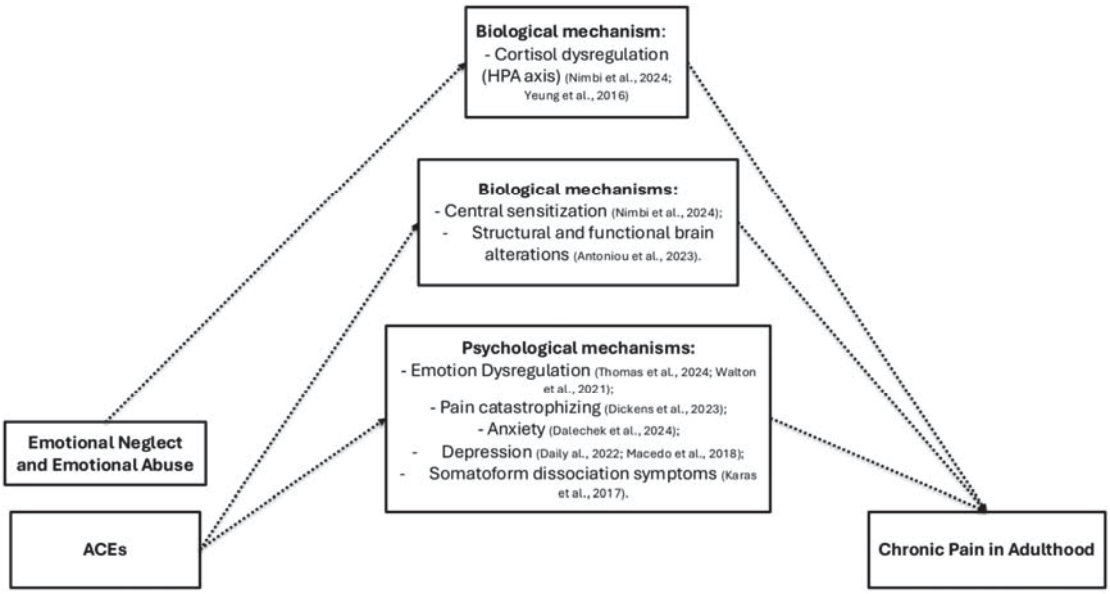

Figure 2. Summary of biological and psychological mechanisms involved in childhood traumas-chronic pain in adulthood relationship according to included studies

DISCUSSION

This scoping review confirms a consistent relationship between adverse childhood experiences and chronic pain in adulthood. The findings emphasize the dual importance of both the cumulative burden of ACEs and the nature of these events, particularly emotional maltreatment, in the development and persistence of chronic pain, which corroborates the latest available data (Karovimov-Zwienenberg et al. (2024) and the association between ACEs and heightened pain sensitivity later in life (Pierce et al. 2023).

Our results support the added impact of C-PTSD, beyond PTSD, in pain chronification, which is consistent with the literature indicating that trauma of whatever kind in childhood has a greater impact than that occurring in adulthood, due to greater excitability and a lack of inhibition in the developing brain and nervous system (Campbell, 2022).

Psychological pathways, such as emotion dysregulation, dissociation, pain catastrophizing and affective disorders such as anxiety and depression emerged as mediators between ACEs and chronic pain in adulthood, highlighting the role of affective processing in pain maintenance. The pain catastrophizing process echoes the Fear-Avoidance Model of Pain (Vlaeyen & Linton, 2000), which suggests that individuals who catastrophize pain may develop fear, adopt avoidance behaviors, and enter a cycle that maintains or worsens CP.

Biological mechanisms identified in some studies, such as altered level of cortisol, central sensitization, structural and functional brain alterations involved in pain and affective processing, align with allostatic load theory which describes how allostatic load, due to prolonged stress, can produce pro-inflammatory and pro-nociceptive states contributing to the development and maintenance of pain (Simons et al. 2014).

Furthermore, emotional maltreatment, such as childhood emotional neglect and emotional abuse, seems to play a key role in persistence of chronic pain in adulthood, suggesting a specific emotional pathway linking early adversity to pain persistence. Emotional neglect appears to be the most consistent predictor of adult chronic pain in our review and the broader literature (Glaser, 2002; Kaplan, Pelcovitz, & Labruna, 1999; Rees, 2010). This specific emotional pathway could be explained by the strongest association for emotional neglect and emotional abuse with affective disorders (Gloud et al. 2012; Hovens et al. 2012) which have themselves been described as having a significant impact on chronic pain (Egloff et al. 2017). Emotional traumas may heighten pain catastrophizing via impaired emotion regulation, which corroborate a chronic pathway in which childhood trauma-related psychopathology maintains pain long after CT (Nicolson et al. 2023).

The results obtained regarding the cumulative impact of trauma could be explained by the higher frequency of emotional neglect among other types of CT (Paquette et al. 2004) and by the frequent co-occurrence of NE and emotional abuse with other forms of childhood traumas.

Clinically, these findings support the need for integrated, biopsychosocial pain management strategies that incorporate trauma history, emotional functioning, and psychological vulnerability factors.

Limits

Although this review is the first to systematically map the relationship between various types of childhood trauma and chronic pain in adulthood while exploring the underlying biological and psychological mechanisms, several limitations must be acknowledged.

First, our synthesis revealed a notable lack of data specifically addressing the associations between distinct types and anatomical locations of chronic pain and ACEs. Most included studies relied on cumulative trauma scores, which may obscure the specific contribution of individual trauma subtypes. Furthermore, when individual trauma types were assessed, emotional neglect and emotional abuse were often not consistently measured, despite emerging as the strongest predictors of adult chronic pain in the studies that included them. This omission may reflect broader measurement issues in trauma research. Moreover, previous literature suggests differential impacts of neglect versus abuse on both the HPA axis and general health outcomes (Yeung et al. 2015), yet very few studies directly compared these trauma subtypes.

Futures directions

In light of our findings and the broader literature, future research on childhood trauma and chronic pain should no longer overlook the distinct roles of emotional neglect and emotional abuse. These trauma forms should be systematically measured and analyzed in relation to adult CP outcomes.

Specifically, future studies should investigate the differential impacts of emotional versus non-emotional trauma, as well as neglect versus abuse, to clarify whether these subtypes are associated with unique chronic pain trajectories and clinical profiles. Such efforts would advance precision in both scientific understanding and clinical treatment strategies (Karimov-Zwienenberg et al. 2024).

Furthermore, future research should incorporate specific assessments of pain typologies (e.g., neuropathic, musculoskeletal, visceral), pain locations, and associated functional impairments. A dimensional approach that links specific types of childhood trauma

to well-characterized chronic pain phenotypes may improve diagnostic accuracy and therapeutic intervention.

Additionally, the central role of emotional regulation mechanisms identified in this review warrants deeper investigation. Emotion regulation difficulties may represent a promising therapeutic target for psychological interventions aimed at preventing or alleviating chronic pain in individuals with a trauma history.

Finally, although CPTSD remains insufficiently recognized in research and clinical practice, our findings suggest that it may play a role in pain chronification. Integrating CPTSD screening into pain assessment could improve diagnostic accuracy and inform more targeted, trauma-informed interventions.

CONCLUSION

This scoping review confirms a strong link between ACEs and adult chronic pain, especially regarding cumulative trauma and emotional maltreatment. Findings underscore the mediating role of psychological dysfunctions, such as emotion dysregulation, dissociation, and pain catastrophizing. These results call for trauma-informed, emotionally focused, biopsychosocial pain care, incorporating systematic assessment of childhood trauma and related affective patterns to disrupt the chronic pain cycle and enhance treatment outcomes.

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Contribution of individual authors:

Camille *Eugénie Dieu*: writing – original draft, writing – review & editing, investigation, resources, methodology, formal analysis, data curation, conceptualization.

Giovanni Briganti: supervision, review & validation.

Both authors approved the final manuscript.

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