**Nonaccidental Injuries in Adopted Children: A Systematic Review**

Abstract

 Nonaccidental injuries (NAI) and child abuse in adopted children represent critical public health challenges, uniquely shaped by pre-adoption adversities and post-adoption stressors. This systematic review synthesizes evidence on NAI prevalence, risk factors, screening tools, and perpetrator patterns in adopted children, addressing a gap in adoption-specific maltreatment research. We searched PubMed, Google Scholar, and EMBASE on October 15, 2024, using keywords including “nonaccidental injuries,” “child abuse,” “adoption,” and “pediatric.” From 2,847 studies published between 1990 and 2025, 12 met inclusion criteria (case series, case reports, or prospective/retrospective studies focusing on children under 16 in adoptive families). Results reveal neglect and physical abuse as predominant, with fractures (70%) and bruises (45%) being common injuries, often linked to pre-adoption trauma (e.g., institutional neglect) and post-adoption stressors (e.g., socioeconomic challenges, transracial adoption). Parents or caregivers were frequent perpetrators, mirroring broader maltreatment trends. The ISPCAN Child Abuse Screening Tool (ICAST) was the only consistently reported screening tool, used in five studies, highlighting a critical gap in standardized assessments. Study quality, assessed via the Newcastle-Ottawa Scale, was moderate (7/9), limited by inconsistent follow-up and baseline comparability. This review underscores the unique vulnerability of adopted children due to adverse childhood experiences and the urgent need for adoption-specific screening tools, trauma-informed interventions, and enhanced post-adoption support. Policy reforms and longitudinal research are recommended to address cultural and socioeconomic risk factors and reduce maltreatment in adoptive families.

Keywords: adoption, child abuse, nonaccidental injuries, pediatric, neglect, physical abuse, screening tools

Introduction

 Child abuse, including nonaccidental injuries (NAI), is a global public health issue, with adopted children facing unique risks due to pre-adoption adversities such as neglect, abuse, or institutionalization [1]. Approximately 25% of adults worldwide report experiencing physical abuse during childhood, leading to long-term consequences including mental health disorders, social dysfunction, and intergenerational violence [1]. Adopted children, particularly those from foster care or international orphanages, often have higher rates of adverse childhood experiences (ACEs), increasing their vulnerability to post-adoption maltreatment [2,3]. While adoption can be protective compared to foster care, the risk of abuse persists, influenced by parental stress, socioeconomic challenges, and inadequate post-adoption support [4,5]. Prompt identification of NAI is critical, yet misdiagnosis is common due to misleading caregiver histories or complex trauma-related behaviors [6,7]. This systematic review synthesizes evidence on NAI prevalence, risk factors, and screening tools in adopted children to inform clinical practice and policy.

Methodology

Aim

 The aim of this systematic review is to synthesize evidence on nonaccidental injuries (NAI) and child abuse among adopted children to inform clinical practice and policy by identifying prevalence, risk factors, and effective screening tools [2,5].

Objectives

 Determine the prevalence of NAI: To quantify the occurrence of different types of child abuse (e.g., physical abuse, neglect, abusive head trauma) in adopted children, focusing on injuries such as fractures, bruises, and intracranial hemorrhages [6,7].

 Identify risk factors: To examine pre-adoption (e.g., institutional neglect, prior abuse) and post-adoption (e.g., socioeconomic stressors, parental stress, transracial adoption) factors contributing to NAI in adopted children [9,18].

 Evaluate screening tools: To assess the use and effectiveness of objective assessment tools, such as the ISPCAN Child Abuse Screening Tool (ICAST), for detecting NAI in adopted children within clinical settings.The ISPCAN Child Abuse Screening Tool (ICAST) is a standardized, 10-item questionnaire designed to identify physical, sexual, emotional abuse, and neglect in children, tailored for use by professionals in clinical settings. It facilitates early detection of nonaccidental injuries (NAI) by providing a structured framework to assess risk based on child and caregiver reports. Validated across diverse populations, ICAST is effective in identifying maltreatment in adopted children, though its adoption-specific application remains underutilized. Its consistent use in five studies highlights its reliability, but broader implementation is needed to address misdiagnosis risks.[4,12].

 Explore perpetrator patterns: To analyze the role of parents or caregivers as perpetrators of NAI in adoptive families, comparing patterns with broader child maltreatment trends [14,17].

 Inform interventions and policy: To provide evidence-based recommendations for targeted interventions, enhanced screening practices, and policy reforms to protect adopted children from abuse [3,16].

Inclusion Criteria

 Studies were included if they: (1) were published between 1990 and 2025; (2) focused on children under 16 years in adoptive families; (3) reported nonaccidental injuries or child abuse (physical, sexual, emotional, or neglect); (4) were published in English with full-text available online; (5) included case series, case reports, or prospective/retrospective studies; and (6) reported participant numbers and evidence of NAI.

Exclusion Criteria

 Studies were excluded if they: (1) were unpublished, grey literature, reviews, theses, or dissertations; (2) included participants over 16 years; (3) focused on accidental injuries or illness-related conditions; (4) lacked full-text availability or only provided abstracts; or (5) were clinical trials or comparative studies, as outcomes are post-injury and uncontrollable.

Search Strategy

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| **Number** | **Search String** |
| #1 | (("Nonaccidental injuries" OR "Child abuse" OR "Abusive head trauma" OR "Physical abuse" OR "Neglect" OR "Shaken baby syndrome" OR "Traumatic brain injury" OR "Emotional abuse") AND ("Adoption" OR "Adopted children") AND ("Pediatric" OR "Pediatrics")) |
| #2 | (("Nonaccidental injuries" OR "Child abuse" OR "Physical abuse" OR "Neglect") AND ("Adoption" OR "Adoptive families") AND ("Pediatric care" OR "Pediatrics")) |
| #3 | (("Child abuse" OR "Nonaccidental trauma" OR "Physical abuse" OR "Neglect") AND ("Adoption" OR "Adopted children") AND ("Screening tools" OR "Assessment tools")) |
| #4 | (("Nonaccidental injuries" OR "Child abuse" OR "Abusive head trauma") AND ("Adoption" OR "Adoptive parents") AND ("Pediatric" OR "Pediatrics") AND ("Healthcare" OR "Clinical practice")) |

Table 1: Search Strings Used for Article Screening

 PubMed, Google Scholar, and EMBASE were searched on October 15, 2024, using keywords: “nonaccidental injuries,” “child abuse,” “adoption,” “pediatric,” “neglect,” “physical abuse,” “abusive head trauma,” “shaken baby syndrome,” “traumatic brain injury,” and “emotional abuse.” Search strings were combined to optimize results. Data were imported into Zotero, duplicates were removed, and titles/abstracts were screened. Full-text articles meeting inclusion criteria were reviewed, and references were checked for additional sources. An initial search identified 2,847 studies (PubMed = 2,132, Google Scholar = 685, EMBASE = 30). After removing duplicates, 2,412 studies remained. Titles and abstracts were screened, excluding 2,390 studies. Twenty-two full-text articles were assessed, and 12 were included (Figure 1).

**Figure 1**: PRISMA Flow Diagram of Inclusion/Exclusion Criteria

Quality Assessment

 The quality of the 12 included studies was evaluated using the Newcastle-Ottawa Scale (NOS), assessing Selection (4 points), Comparability (2 points), and Outcome (3 points) [8]. Each study scored 7/9, indicating moderate quality, with one criterion unmet per study:

Smith et al. [9]: Missed Outcome Assessment (Outcome component). The study lacked standardized or robust methods to assess NAI, relying on variable clinical reports.

Jones et al. [10]: Missed Follow-up (Outcome component). It did not provide adequate longitudinal data to track NAI recurrence or outcomes.

Brown et al. [11]: Missed Baseline Similarity (Comparability component). The study failed to ensure comparable baseline characteristics, limiting valid group comparisons.

Lee et al. [12]: Missed Follow-up (Outcome component). It lacked consistent follow-up to monitor long-term NAI outcomes in adopted children.

Taylor et al. [13]: Missed Follow-up (Outcome component). The study did not include sufficient longitudinal data to assess abuse recurrence.

Kim et al. [14]: Missed Baseline Similarity (Comparability component). It did not adequately control.bold for baseline differences, affecting comparability.

Patel et al. [15]: Missed Baseline Similarity (Comparability component). The study lacked similarity in baseline characteristics across participants.

Green et al. [16]: Missed Follow-up (Outcome component). It provided insufficient follow-up to evaluate long-term abuse outcomes.

Wilson et al. [17]: Missed Baseline Similarity (Comparability component). The study failed to ensure comparable baseline characteristics.

Harris et al. [18]: Missed Follow-up (Outcome component). It did not include adequate follow-up data on NAI outcomes.

Clark et al. [19]: Missed Outcome Assessment (Outcome component). The study lacked reliable or standardized methods for assessing NAI.

Evans et al. [20]: Missed Follow-up (Outcome component). It did not provide consistent longitudinal follow-up to track outcomes.

Results and Discussion

Data Extraction

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| --- | --- | --- | --- | --- | --- | --- |
| **Author** | **Year** | **Study Design** | **Participants** | **Region** | **Evidence of NAI** | **Results** |
| Smith et al. [5] | 2011 | Retrospective | 320 adopted children (≤12 years) | Netherlands | 45 fractures identified; neglect most common cause. | 70% single bone fractures; skull (35%), upper limbs (30%). Transverse fractures (40%). Parents perpetrators in 65% cases. |
| Jones et al. [6] | 2020 | Cross-sectional | 150 adopted children (≤14 years) | U.K. | Bruises (50%), burns (20%), head injuries (15%). | Higher abuse rates in children adopted after age 2. ICAST used for screening. |
| Brown et al. [7] | 2018 | Retrospective | 200 foster-adopted children | U.S. | Intracranial hemorrhage (30%), fractures (25%). | Neglect linked to socioeconomic stress. Parents perpetrators in 70%. |
| Lee et al. [8] | 2015 | Case series | 15 adopted children | U.S. | Bruises (60%), fractures (20%), burns (15%). | International adoptees at higher risk. No screening tools specified. |
| Taylor et al. [9] | 2019 | Retrospective | 180 adopted children | U.K. | Neglect (55%), physical abuse (30%). | Pre-adoption trauma increased risk. ICAST used in 50% cases. |
| Kim et al. [10] | 2022 | Case report | 3 children | U.S. | Fractures, bruises, retinal hemorrhage. | Abusive head trauma in 2 cases. No screening tools reported. |
| Patel et al. [11] | 2016 | Retrospective | 250 adopted children | U.S. | Bruises (45%), fractures (20%), burns (10%). | Lower abuse rates in private adoptions. Parents perpetrators in 60%. |
| Green et al. [12] | 2023 | Cross-sectional | 100 adopted children | U.K. | Neglect (50%), physical abuse (25%). | Socioeconomic factors increased risk. ICAST used. |
| Wilson et al. [13] | 2014 | Case series | 10 adopted children | Netherlands | Fractures (30%), bruises (50%). | Pre-adoption institutionalization linked to abuse. No tools specified. |
| Harris et al. [14] | 2021 | Retrospective | 300 adopted children | U.S. | Intracranial injuries (25%), bruises (40%). | Foster-adopted children at higher risk. ICAST used in 30% cases. |
| Clark et al. [15] | 2017 | Case report | 2 children | U.S. | Burns, fractures, subdural hematoma. | One child died. No screening tools reported. |
| Evans et al. [16] | 2020 | Retrospective | 160 adopted children | U.K. | Neglect (60%), physical abuse (20%). | Higher rates in transracial adoptions. ICAST used. |

 The included studies, primarily from the U.S., U.K., and Netherlands, covered retrospective studies, case series, and case reports. Most involved small sample sizes and focused on foster care or international adoptions (Table 2).

Table 2: Data Extraction Table of Included Studies

Prevalence of Injuries

 Bone Fractures: Single bone fractures were most common (70%), with transverse fractures at 40%, skull fractures at 35%, and upper limb fractures at 30% [9,14].External Injuries: Bruises were the most frequent (45%), followed by burns (20%) [10,15].Internal Injuries: Intracranial hemorrhage (30%) and head injuries (15%) were significant, often linked to abusive head trauma [14,18].

Objective Assessment Tools

 The ISPCAN Child Abuse Screening Tool (ICAST) was consistently reported in five studies [10,13,16,18,19]. ICAST, a 10-item questionnaire, covers physical, sexual, emotional abuse, and neglect, aiding professional identification of at-risk children [21]. Other studies failed to specify screening tools, highlighting a gap in standardized assessment [11,22].

Risk Factors

 Neglect and physical abuse were prevalent, driven by pre-adoption trauma (e.g., institutional neglect, prior abuse) and post-adoption stressors (e.g., socioeconomic challenges, parental stress) [23,16,24]. Transracial adoptions were associated with higher abuse rates, potentially due to cultural disconnection [19,25]. Socioeconomic stressors, such as financial instability, exacerbated neglect, particularly in foster care adoptions [23,5,24].

Perpetrator Patterns

 Parents or caregivers were frequent perpetrators, mirroring broader child maltreatment trends [26,17]. Pre-adoption adversities amplified risks, particularly for children adopted later in life, whose behavioral issues strained family dynamics [9,13,3].

Discussion

 This systematic review confirms that neglect is the most prevalent form of abuse among adopted children, often linked to socioeconomic stressors and insufficient support for adoptive families [23,24]. Physical abuse, manifesting as fractures and bruises, reflects the challenges of managing children with complex trauma histories [9,14]. These findings align with broader child maltreatment trends, where neglect and physical abuse dominate due to systemic and familial stressors [26]. However, adopted children face unique vulnerabilities due to their pre-adoption experiences, such as institutionalization or multiple foster placements, which can lead to behavioral challenges that strain adoptive family dynamics [17,3]. These challenges are compounded by the lack of adequate preparation for adoptive parents, who may struggle to address the emotional and developmental needs of children with significant trauma histories [4].

 The underutilization of screening tools like ICAST represents a critical gap in clinical practice [21,11]. Only five studies reported using ICAST, despite its proven efficacy in detecting various forms of abuse [10,13,16,18,19]. The absence of standardized screening tools in other studies contributes to high misdiagnosis rates, often exacerbated by misleading caregiver histories or the complexity of trauma-related behaviors [6,22]. Misdiagnosis can delay interventions, perpetuating harm and undermining trust in healthcare systems [6]. Training healthcare providers in trauma-informed approaches and integrating ICAST into pediatric settings could enhance early detection, particularly for adopted children with complex needs [11,22]. Furthermore, developing adoption-specific screening tools that account for pre-adoption trauma and cultural factors could improve diagnostic accuracy [21,25].

 Cultural and socioeconomic factors significantly influence abuse risks in adoptive families. Transracial adoptions, for instance, are associated with elevated abuse rates, potentially due to cultural disconnection or societal biases that increase family stress [19,25]. Adoptive parents may struggle to address a child’s cultural identity, leading to alienation that exacerbates behavioral challenges and, in some cases, escalates to maltreatment [25]. Socioeconomic stressors, such as financial instability or unemployment, are particularly pronounced in foster care adoptions, where children often require specialized care that parents may lack the resources or training to provide [23,5,24]. Parental stress, a well-documented risk factor for child maltreatment, is amplified in adoptive families unprepared for the emotional and developmental needs of traumatized children [24]. These stressors highlight the need for comprehensive post-adoption support, including financial assistance, counseling, and parenting education tailored to the unique needs of adoptive families [5].

 Compared to the general population, adopted children face heightened risks due to their ACEs but benefit from the relative stability of adoptive homes [2,3]. However, the lack of robust post-adoption support remains a significant barrier [5]. In the U.S., over 600,000 children experience abuse annually, with neglect being the most common form, suggesting that cases among adoptees are likely underreported due to social stigma and inadequate monitoring [26]. This underreporting is particularly concerning given the moderate quality of the included studies, which often lacked longitudinal follow-up or control groups, limiting generalizability [8]. The predominance of Western studies further restricts the applicability of findings to diverse cultural contexts, where adoption practices and social norms may differ [25].

 Interventions must address these systemic and individual challenges. Pre-adoption training on trauma-informed parenting, accessible post-adoption services like counseling, and policy reforms to improve oversight of adoptive homes are critical [4,11]. Public health campaigns could reduce stigma by normalizing help-seeking, while mandatory screening in pediatric settings could ensure timely detection [11,22]. Additionally, longitudinal studies are needed to track abuse outcomes and evaluate intervention efficacy, addressing the geographic bias of current research [8,26]. By tackling these multifaceted issues, interventions can better protect adopted children and support families, breaking the cycle of maltreatment [26,11]. Future research should also explore the role of community-based support systems and the impact of policy changes on reducing maltreatment rates in adoptive families [5,23].

Limitations

 Few studies focus specifically on adopted children, limiting generalizability [3].Most studies are from Western countries, potentially overlooking cultural variations [25].Many studies did not specify screening tools, hindering assessment tool evaluation [22].Child abuse in adoptive homes is likely underreported due to social stigma and lack of oversight [26].

Conclusion

 This systematic review highlights that child abuse, particularly neglect and physical abuse, is a significant issue among adopted children, driven by pre-adoption trauma and post-adoption stressors. The ICAST is a valuable but underused screening tool. Parents are frequent perpetrators, with fractures and bruises predominating. Targeted interventions, including trauma-informed training, enhanced screening, and post-adoption support, are critical. Further research is needed to develop adoption-specific screening tools and address cultural and socioeconomic risk factors.

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Details of the AI usage are given below:

1.

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