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REVIEW ARTICLE

Childhood Maltreatment and Violent Behaviour: A Systematic Review

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ABSTRACT

A complex interlink between childhood maltreatment and later life delinquency is evident in different studies. This systematic review examines the intricate relationship between childhood maltreatment and the subsequent engagement of individuals in violent exposures. A comprehensive search of the Web of Science (WoS) core collection synthesises several empirical studies published over the last 18 years. Through a meticulous screening process and stringent inclusion criteria, 27 studies were finally selected for analysis using the PRISMA guidelines. The synthesised findings highlight the nuanced interplay between various forms of childhood maltreatment and other confounding factors that predict violence. The USA and China were the most pragmatic in studying this issue. Different statistical techniques, e.g., correlation, regression, and structural equation modelling, were used in these studies. It was found that different forms of maltreatment directly affect violent behaviours. Other factors like psychopathy, drug abuse, conduct disorder, impulsivity, narcissistic vulnerability, and other psychosocial factors often confound it or act as mediators. Gender differences were also examined in some studies. Females were found to be more prone to violent exposure as the outcome of their maltreatment experience in some studies. Findings reveal that neighbourhood factors (neighbourhood disorganisation and social capital) are less represented here.

Keywords: Childhood, maltreatment, violent, impact, theory

INTRODUCTION

The sophisticated relationship between childhood experiences and subsequent behavioural outcomes has always drawn the attention of scholars and practitioners around the globe (Baglivio et al., 2020, p. 18; Baglivio & Wolff, 2021; Boch & Ford, 2018; Duke et al., 2010, 2010; L. T. Guo, 1989; Hambrick et al., 2018; Huei-Jong et al., 2021; Malvaso et al., 2019; Miley et al., 2020; Miura & Fuchigami, 2022; Moss et al., 2020; Shaw et al., 2019; D. Wang et al., 2020). Within the broader perimeter of this context, studying the relationship between childhood maltreatment and delinquency is of utmost interest to researchers (Clarkson Freeman, 2014). As a pivotal concern, many studies have been conducted to understand how different forms of maltreatment or adversity experienced by children in their formative years expose them to violent or aggressive behaviours later in their lives (Weaver et al., 2008). This systematic literature review intends to understand the bibliometric properties of research conducted within this scope, endeavouring to unravel the underlying factors that bridge these distal domains.

Childhood maltreatment or childhood trauma incorporates several negative experiences that children or adolescents encounter in their early childhood. Maltreatment includes physical abuse, sexual abuse, emotional abuse, emotional neglect, negative family context, and other adversities (Duncan, 2001). Different studies have investigated the link between maltreatment experiences and violent or aggressive behaviours, simultaneously considering the presence of other factors, ranging from health and genetics to social factors, like peer groups or criminogenic knowledge structure (Baron & Forde, 2020; Forsman & Långström, 2012; Tung et al., 2019). However, this study will broadly focus on studies that have covered maltreatment and violent behaviours with or without considering other related variables.

This knowledge structure regarding childhood maltreatment outcomes rests upon studies conducted during the last few decades. Researchers have used numerous methodological adoptions, theoretical explanations, measurement models, and analytical techniques during the last two decades to understand its causal relationship with violent offending or aggressive behaviours. To do this, they included numerous other factors that might confound the relationship. Incorporating 27 articles scrutinising 64 using WoS

core collection has allowed us to dive deeply into these issues. Therefore, this study not only consolidated the potential factors that were incorporated in previous studies but also showed the future research gap that should be addressed.

Navigating the previous studies, we found diverse methodologies and approaches in conducting research in the selected field to understand the multiple approaches to reaching a scientific conclusion. Researchers adopted various sampling techniques from using primary data to secondary data (data repository), different time frames from cross-sectional to longitudinal data, different theoretical frameworks from using no direct theoretical framework to a direct theoretical framework, different measurement techniques from their self-measurement models to existing measurement models, different variable clusters from having no confounders to having multiple ones, and different analysis techniques from correlation to structural equation modelling.

In the following sections, we will dissect the findings of our synthesised studies and explain the complex interplay of different forms of abuse and their specific contribution to subsequent violent behaviours. This study will also search for other confounders like Psychopathy, drug abuse, conduct disorder, psychopath, impulsivity, narcissistic vulnerability, appetite aggression, maltreatment chronicity, and many more in understanding the relationship between the main variables. Furthermore, gender-based variation will be included based on studies that analysed this issue.

This systematic review will contribute to the existing discourse for understanding childhood abuse and their later life law-breaking exposures, specifically violent behaviours. This analysis provides a cross-cultural overview of variables used, methodological adoption, and cultural dynamics in the selected context by dissecting previous studies. This endeavour may help academics and professionals understand the more significant insights of associated facts, make society more congenial for children, and reduce violent offending.

Objective of the study

The objectives of this study are twofold. First, we conducted a comprehensive bibliometric analysis of the database's key trends, significant themes, and basic patterns of existing literature about childhood adversity and violent actions. Second, to conduct a systematic review of the dynamic relationship between childhood adversity or childhood maltreatment and subsequent violent delinquency. By examining existing studies, this paper aims to identify key variables' measures, the theoretical basis of studies, mediating effects or co-occurrence of different factors, and gender dynamics of research. Through this systematic review, we intend to contribute a deeper understanding of the focus of past research regarding the complex interplay of associated factors in the context.

Method

Protocol

The present study has followed PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines for searching and screening articles from WoS (Moher et al., 2009). This study was not submitted to any other register of systematic reviews for its prior approval.

Eligibility Criteria

The present study conducted a literature search using the Web of Science Core Collection online database. We included all available research published in the English language within this database, which different researchers published from 2004 to 2022 on the associated factors regarding childhood maltreatment and subsequent violent exposures. This study adopted the definition of childhood trauma, childhood maltreatment, or adverse childhood experiences as different forms of physical, sexual, psychological, and familial traumas during childhood (Baglivio et al., 2020; C. Burke et al., 2023, 2023). Our present study also defined violent behaviours as illegal or antisocial acts committed by minors that included threats or force against persons or property, while considering violent behaviour as a subset of aggression (Allen & Anderson, 2017; Eisner & Malti, 2015). For this analysis, we incorporated both violent and aggressive behaviours within the perimeter of violent behaviours. Here, we included only those research papers that were i) published in the English language, ii) published from 2004 to 2022, iii) the research articles, not the review ones, and iv) conducted on psychosocial factors associated with childhood adversity and its subsequent violent delinquency. We excluded purely health-related studies from the review because they were beyond our study objective.

Some studies initially seemed to meet the selection criteria during the search; however, after carefully reading the title, abstract, and main text, we found that some articles did not align with the inclusion-exclusion criteria and objective of the present study. Therefore, from the initial 64 articles in this study, we first excluded 33 articles by assessing the title and abstract. After going through the complete text, we excluded four more studies and finally included 27 articles that met our eligibility criteria. We removed the articles by Ahmad et al. (2022), Morgan et al. (2019), Giovanelli & Reynolds (2021), and Kazeem (2020) after a

comprehensive reading to align the search results with the eligibility criteria of the present study. Figure 1 indicates the course of the studies included in this review as per the PRISMA guidelines.
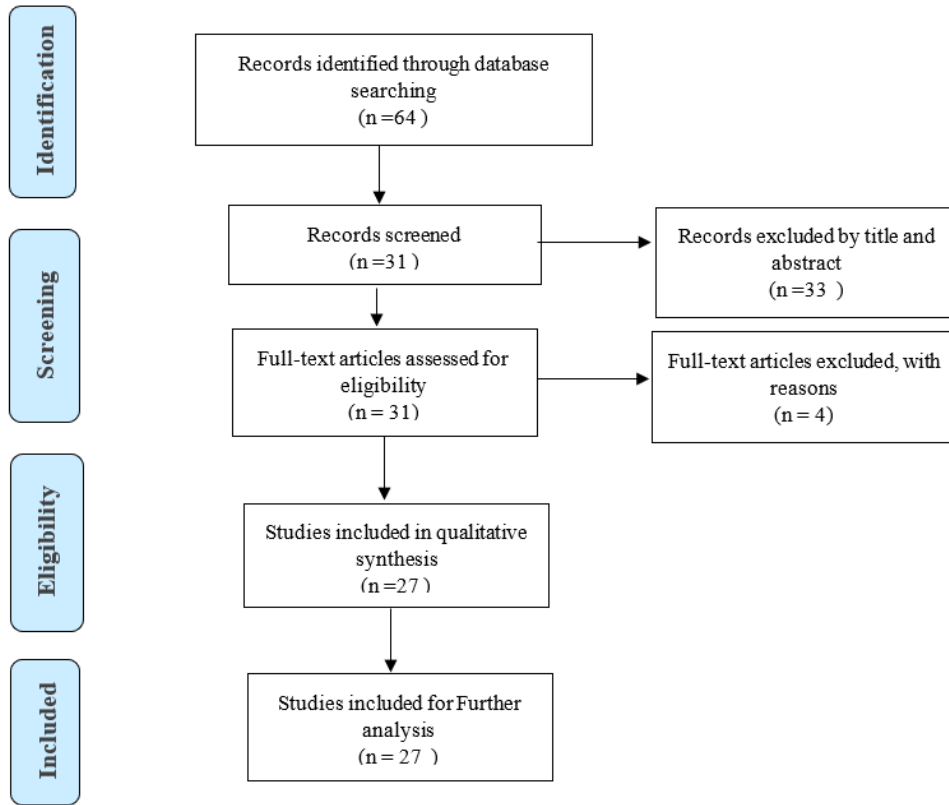
Figure 1. Flow Diagram (Based On PRISMA)

Information Source and Search Strategy

We searched research articles in the Web of Science Core Collection using the search items, "ACE" OR "Childhood Adversity" OR "Adverse Childhood Experience" OR "Childhood Trauma" OR "Childhood Maltreatment" AND "Violent Delinquency" OR "Violent Crime" OR "Violent Offence". The exact phrase we used is ("ACE" OR "Childhood Adversity" OR "Adverse Childhood Experience" OR "Childhood Trauma" OR "Childhood Maltreatment") AND ("Violent Delinquency" OR "Violent Crime" OR "Violent Offence"). This search initially identified 64 articles. Applying the PRISMA framework and our inclusion-exclusion criteria, we found 27 articles for this study.

Data Management and Selection

As mentioned, we used the PRISMA guidelines to search and include articles for this analysis and the WoS core collection as the search engine. The WoS database ensures all bibliometric properties for analysis with Bibilometrix, a package of R programming language during sophisticated bibliometric analysis. The initial search identified 64 articles. No duplicate cheque was required because we used only a single database for searching articles. After the initial screening, we excluded 33 records, kept 31, and went through further full-text readings. After full-text analysis, we excluded four more articles and analysed 27 articles at the end.

Data extraction only included articles that were published from 2004 to 2022. Two authors independently extracted articles from the WoS database. The records for the exact keywords generated similar results in both cases. The articles were finally screened on the basis of the agreement of both authors.

Results

Study Sample

The total number of samples included in this study is around 6,60,068. The largest sample size in any individual study in the record is 64,007 (Baglivio et al., 2020) and the lowest sample size is 89 (Haapasalo & Moilanen, 2004). Thirteen studies were conducted in the USA (Estrada et al., 2021; Keene & Epps, 2016; K. Rose et al., 2020), and 4 in China (Chang et al., 2021; X. Guo et al., 2022; Peng et al., 2022; Y. Wang et al., 2012), three in Sweden (Björkenstam et al., 2018; Forsman & Långström, 2012; Grahn et al., 2020), two in Canada (Baron & Forde, 2020; Casiano et al., 2009), and five in Germany (Dudeck et al., 2016), Italy (Sarchiapone et al., 2009), Finland (Haapasalo & Moilanen, 2004), Israel, and South Korea (Choi et al., 2017).

Study Design

The studies on this aspect were primarily quantitative in nature. Both cross-sectional and longitudinal data were collected. Most studies used cross-sectional data (n = 22), and others used longitudinal data (n = 5). Most studies (n = 16) were conducted with institutional respondents (including prisons, forensic facilities, drug rehabilitation centres, or juvenile correctional facilities). The remaining studies (n =11) were conducted in non-institutional settings (including students, homeless street youth, young adults, community people, and twins). Both survey and analysis of the existing database were used for collecting data for the selected studies. For example, Peng et al. (2022) collected data from juvenile correctional facilities and Guo et al.(2022) from drug rehabilitation centres. In most studies, data were collected in a quantitative format, although some studies used qualitative data collection techniques and structured interviewing simultaneously.

Bibliometric Analysis

This section will discuss database overview, annual scientific production, three filed plots, most relevant journals (based on Bradford's law), most relevant affiliations, most cited countries, countries' scientific production over time, tree map based on subject categories, and trend topics. This section can help readers understand the studies' characteristics and associated bibliometric features.

Database Overview

Database overview provides valuable information regarding the research landscape of this context. The outline includes studies from 2004 to 2004, indicating 24 different sources. It also shows an annual growth rate of 6.29%, depicting a consistent research interest in academia in this research area. The average age of 6.63% indicates that this research is a relatively new investigation arena among scholars. The average citation per document is 17.59, indicating that the studies are relevant among scholars. A total of 1672 citations indicate its acceptance among the scholarly community as a comparatively new topic. One hundred and nine authors have composed their articles jointly; the context fell into 175 keywords plus, and they used 91 keywords on their own. Among the 27 articles retrieved, 24 are published research articles and 2 are early access papers. Therefore, this overview provides a comprehensive outline of the documents used, citations received, collaboration authors undertook, and types of documents (Table 1).

*Annual Scientific Production (Best 10 based on citation)*

Annual scientific production indicates that although the work on the present issue started in 2004, after that year, the issue was again published in the year of 2009 (3 articles). Then, only 3 articles were published during the year 2011 to 2012. Then again, the trend started in 2015, and the number of publications was the highest in 2020 (5 articles). Then, 2 articles were published in 2021 and 3 in 2022.

Table 1. Database overview

Description	Results
Timespan	2004:2022
Sources (Journals, Books, etc.)	24
Documents	27
Annual Growth Rate %	6.29
Document Average Age	6.63
Average citations per document	17.59
References	1672
Document contents	
Keywords Plus (ID)	175
Author's Keywords (DE)	91
Authors	
Authors	109
Authors of single-authored documents	1
Authors collaboration	
Single-authored documents	1
Co-Authors per document	4.07
International co-authorships %	18.52
Document types	
Article	24
Article; early access	2
Article; proceedings paper	1

### *Three-field Plot (Authors, Keywords, and Sources)*

The three-field plot (the Sankey diagram) combined with authors, keywords, and sources gives insights into individual researchers' priorities for selecting important keywords and publishing their articles in specific journals (Figure 2). The heights of these rectangular nodes indicate the frequency or occurrence of the authors, keywords, or names of specific journals, whereas the widths of the lines connecting the nodes indicate the total number of connections (Koo, 2021). This three-field plot includes authors in the left field, keywords in the middle field, and sources in the right field. So, the overall plot indicates the connectivity of authors who used specific keywords and published in specific journals. Here, the most frequent keywords used by the researchers are "violence" (number of authors = 4, published in 6 journals), "childhood maltreatment" (number of authors = 4, published in 6 journals), "child maltreatment" (number of authors = 4, published in 5 journals), "child abuse" (number of authors = 2, published in 5 journals). DeLisi et al. (2018) and other authors used the most keywords (frequency = 5) from the selected attributes. The diagram also clearly represents information for other authors, keywords, and journals (Figure 2).
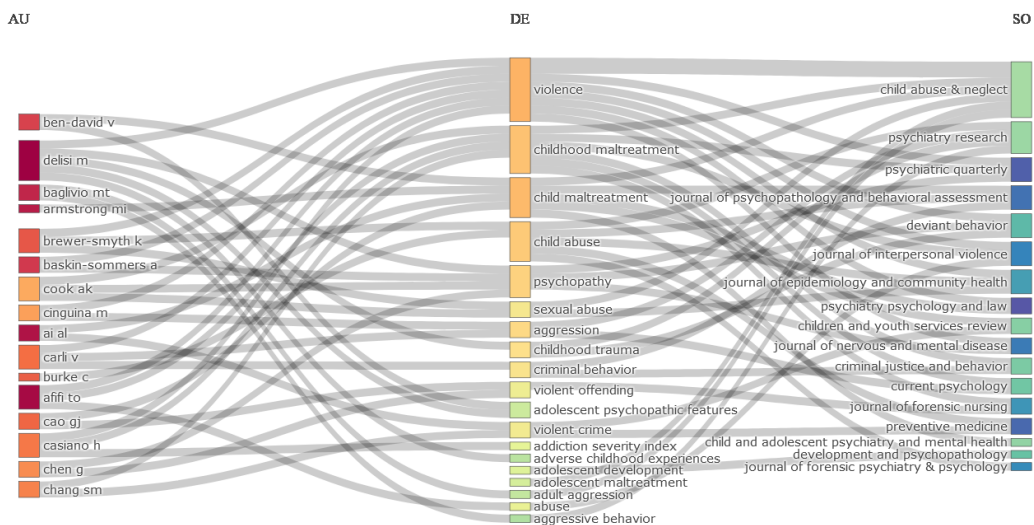
Figure 2. Three-field Plot (Authors, Keywords, and Sources)

Most Relevant Journals

The sources of the present database indicate that the Child Abuse and Neglect and Psychiatry Research journal published the most articles on the selected topic (3 articles and 2 articles consecutively). Among other 22 journals, each published 1 article on this topic (Figure 3).
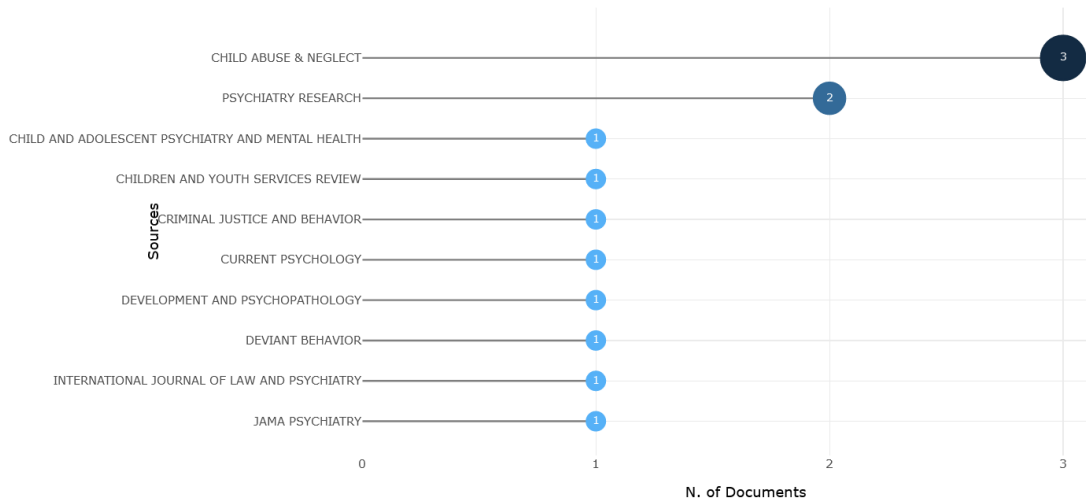
Figure 3. Most Relevant Journals

Bradford's Law

Bradford's law is essential to understanding the most impactful sources for a specific research topic (Yang et al., 2016). It indicates the core journals that include the most articles in a particular topic, signifying that comparatively fewer journals contain the most significant number of relevant literature. Here, it is found that Child Abuse and Neglect journals and psychiatry journals contain the most relevant and core articles on the present topic (Figure 4).
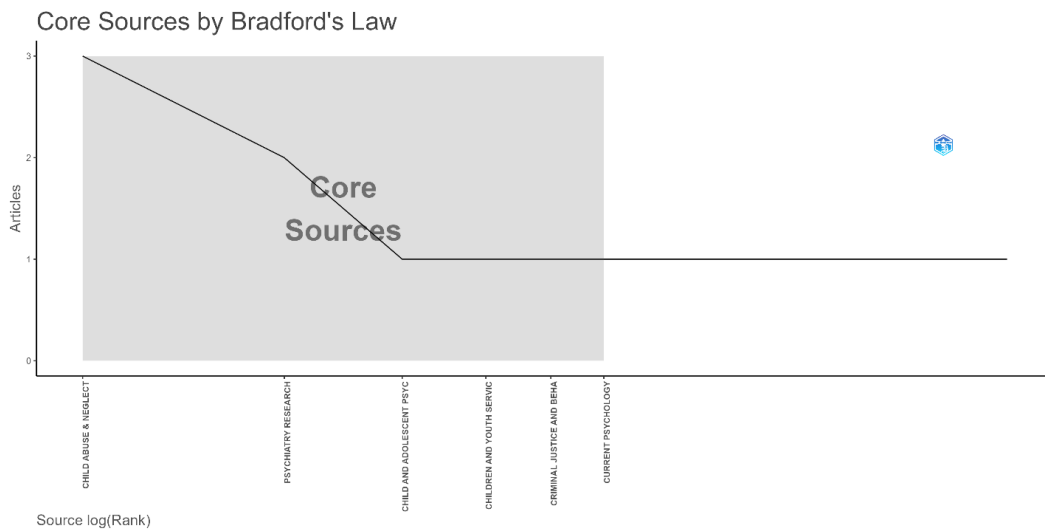
Figure 4. Bradford's Law

Most Relevant Affiliations

The academic institutions that contribute most to the present research topic are shown in Figure 5. It was found that Karolinska Institutet, a research-based medical university in Sweden, and the University of South Florida of USA are the most impactful in contributing to this research area (4 articles were published with their affiliation in this context during the period between 2004 and 2022). Three articles for each institution were published with the affiliation of the State University System of Florida and the University of North Karolina Chapel Hill. With the affiliation of the Medical University of South Carolina, Northeastern University, University of North Carolina, Virginia Commonwealth University, Karolinska Institutet, and State University System of Florida, two articles were published for each (Figure 5).
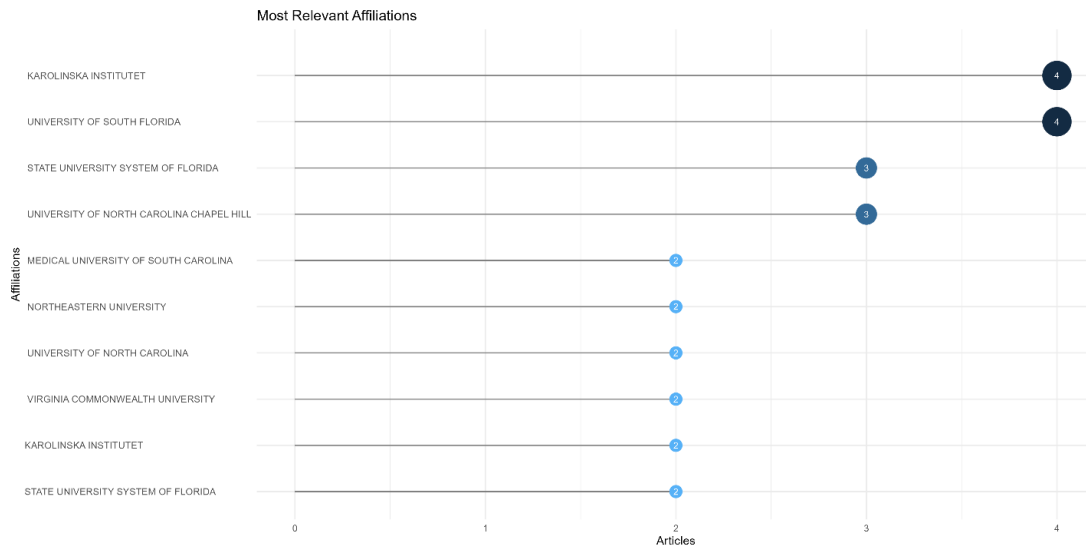

Figure 5. Most Relevant Affiliations

Most Cited Countries

It is seen from the bibliometric analysis that U.S. researchers are the most cited (301 citations) among the 8 countries, followed by Sweden (81 citations) and China (34 citations). From the perspective of average article citations, Sweden got the highest number (27 citations per article), followed by USA (23.20 citations per article), Germany (19 citations per article), Finland (18 citations per article), and China (8.50 citations per article) consecutively (Table 2).

Table 2. Most Cited Countries

Country	Times Cited	Average Article Citations
USA	301	23.20
Sweden	81	27.00
China	34	8.50
Germany	19	19.00
Finland	18	18.00
Canada	15	5.00
Korea	7	7.00

Countries' Scientific Production Over the Time

Countries' scientific production for the present search reveals that the authors affiliated with the institutions from the USA have an increasing participation in publishing articles on maltreatment and violent delinquency. One reason behind this seems to be the selection of search criteria for the present study, where the language of search items was set as English, and this language gives US-based researchers an easy communication opportunity in academia. Another probable reason is that US-based intuitions have

more active researchers who contribute to this study area and publish in Web of Science-indexed journals more frequently than others. Consequently, as a single country, the USA ranked the world's top contributing country to the allied issues with the present context and in the specific timeframe. Between 2016 and 2022, the number of article publications with U.S. affiliation steadily increased from 15 to 34 per year. On the other hand, Canada had a stable affiliation trend with 2 to 4 articles per year. China's trend has increased tremendously by 5 to 13 articles in the last two years in this case. Regarding the affiliation of Sweden, most articles were published from 2018 to 2022 (9 or 10 articles annually). For Korean affiliation, publishing articles on this topic started in 2017, contributing to 3 articles per year (Figure 6).
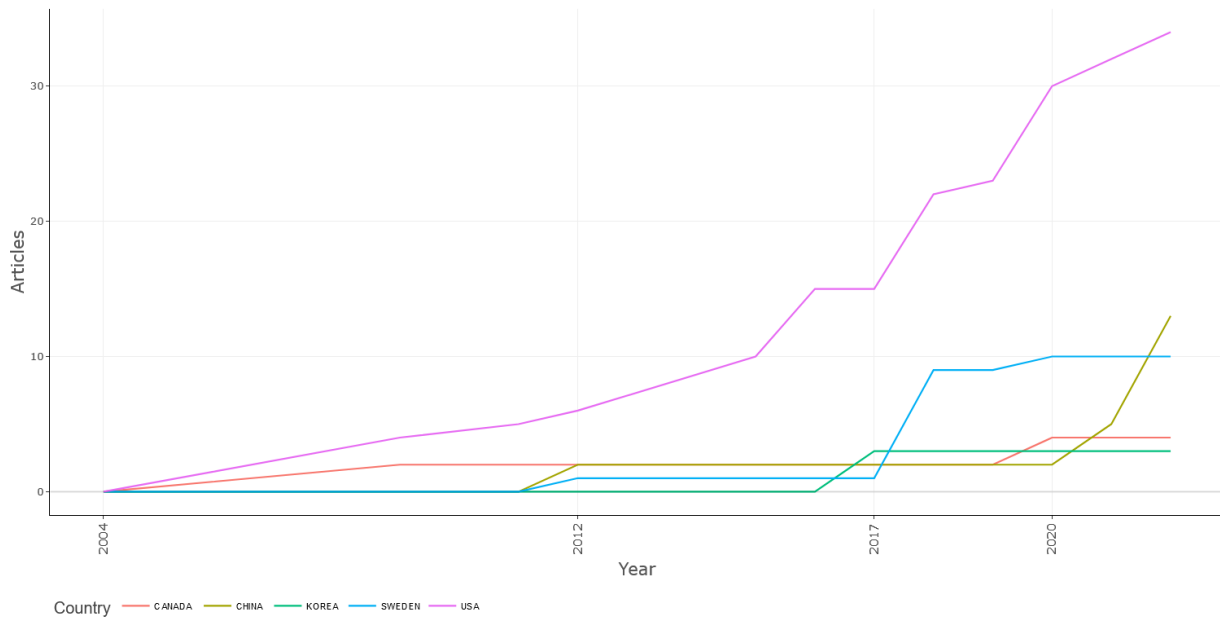
Figure 6. Countries' Scientific Production Over Time (The number of articles presented here is direct numerical information, not the ratio. All single articles for multiple authors are counted individually for all authors).

Treemap (Subject Categories)

Analysing the treemap based on the most frequent **Keywords Plus** of Web of Science, it is found that from 50 used terms, abuse (frequency = 8), physical abuse (frequency = 8), violent delinquency (frequency = 7), antisocial behavior (frequency = 6), sexual abuse (frequency = 6), adolescent maltreatment (frequency = 5) are the most frequent subject categories automatically generated by WoS from the titles of scholarly articles (Figure 7).
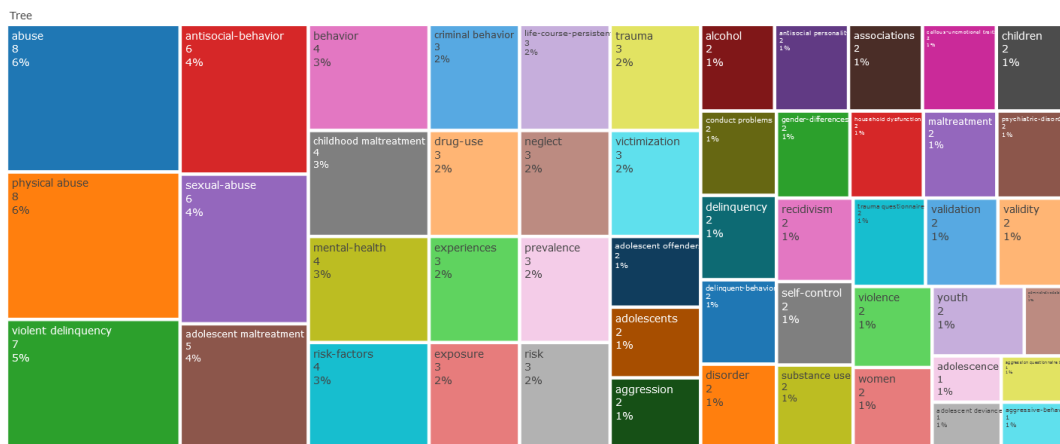

Figure 7. Treemap (Based on Subject Categories)

Trend Topics (Based on Abstracts and Bigrams)

Based on the Keywords Plus of WoS, selecting the minimum word frequency as 5 and number of words per year as 3, it is evident that "abuse" is prevalent from 2014 to 2021 (frequency =8), "violent delinquency" was prevalent from 2014 to 2020 (frequency = 7), "physical abuse" from 2015 to 2020 (frequency = 8), "antisocial-behavior" was prevalent from 2016 to 2018 (frequency =6), "adolescent sexual abuse" was prevalent from 2011 to 2014 (frequency =6) and "adolescent maltreatment" from 2016 t0 2020 (frequency = 5). (Figure 8).
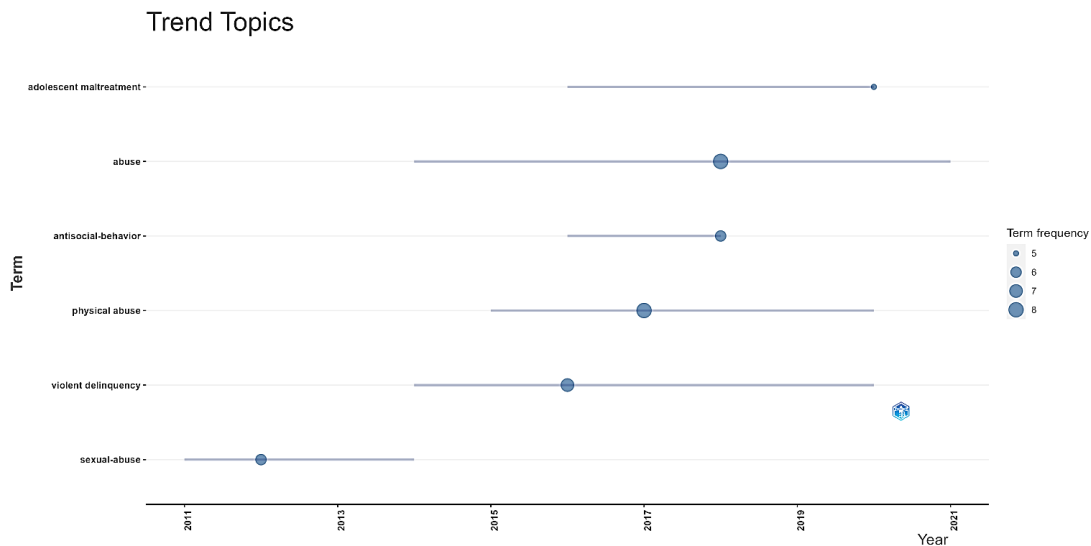
Figure 8. Trend Topics

Measures of Childhood Maltreatment and Violent Delinquency in Different Studies

Measures of Childhood Maltreatment

The studies evaluated in this paper used different measures to collect data on childhood maltreatment and violent delinquency/ violent offending, including aggressiveness. Most of the studies (12 among 27 articles) used different versions of the Childhood Trauma Questionnaire-Short Form (CTQ-SF: 28 items) (Baron & Forde, 2020; N. J. Burke et al., 2011; Chang et al., 2021; Chen, 2020; Choi et al., 2017; DeLisi et al., 2018; Estrada et al., 2021; X. Guo et al., 2022; Peng et al., 2022; Sarchiapone et al., 2009; Y. Wang et al., 2012). Shin et al.(2016) used a Computer-Assisted Self-Interviewing (CASI) method of the Childhood Trauma Questionnaire of 25 items to measure maltreatment.

Some studies used scales validated from previous studies, and many used their self-designed measurement scales. Baglivio et al. (2020) measured cumulative scores of childhood abuse with 10 factors regarding different adversity. Rose et al.(2020) used a specific question from the Psychopathy Checklist – Youth Version (PCL-YV), which is used to measure psychopathic traits, where specific questions were asked about the respondents' physical, sexual, or emotional abuse by dichotomous coding. Grahn et al. (2020) also measured abuse by the same three variables (dichotomously coded with yes or no). With a different aspect, Tung et al. (2019) asked questions about the abuse by a parent or guardian during their physical abuse, sexual abuse, and neglect. Kokkalera et al.(2018) also included parental maltreatment, considering two variables, parental maltreatment, and inter-parental violence, each consisting of two questions.

Björkenstam et al.(2018) collected data for 8 forms of abuse to measure maltreatment, whereas Dudeck et al.(2016) measured Adverse childhood experiences by the German version of the Maltreatment and Abuse Chronology of Exposure Scale (MACE) of 10 subscales. In this regard, Keene and Epps (2016) used a comprehensive scale, the Emotional and Physical Abuse Questionnaire (EPAB), of 32 items.

Ben-David et al. (2015) used longitudinal data, encoded childhood maltreatment from investigative reports of child abuse or neglect (CAN) before age 17, and recorded those in neglect, physical, sexual, or multiple types of maltreatment. Brewer-Smyth et al. (2015) used questions to identify trauma by modifying the questions from the early Trauma Inventory (ETI), whereas Forsman & Långström (2012) collected maltreatment-related data by using the Life Stressor Checklist-Revised (LSC-R) of 6 items.

Yampolskaya et al. (2011) measured maltreatment using four subscales in the database and used the Severity of Maltreatment scale to understand relative differences among different levels of maltreatment. Similar to many other research, Casiano et al. (2009) assessed maltreatment by using three types of experiences, i.e., physical abuse (single question), sexual abuse (2 questions), and witnessing domestic violence (single question).

Spriggs et al. (2009) constructed an indicator of child abuse history based on questions used in Wave III of longitudinal data asking the respondent to report physical or sexual abuse by a parent or caretaker before the respondent reached sixth grade. Sarchiapone et al. (2009) used Brown-Goodwin Lifetime History of Aggression (BGHA) interview (11-item). Finally, Haapasalo & Moilanen (2004) used a scale where the participants responded to a 5-section computerised, structured interview designed by the author.

It was found that most researchers used established measurement scales for collecting data about maltreatment. The researchers who used any database for their study recoded those to align to any specific scale, or some researchers modified previous scales and developed their measurement scale to understand the maltreatment. However, the most popular scale for this purpose was CTQ-SF (Table 4).

Measurement of Violence and Aggression

Four studies used the Buss-Perry Aggression questionnaire (BPA 29 or 30 items) to measure aggression. Peng et al. (2022), Guo et al. (2022) (Chinese version of this BPAQ), Keene & Epps (2016), and Brewer-Smyth et al. (2015) all used this scale. Some studies were conducted solely on the respondents already guilty of such involvement (Chang et al., 2021). Eight studies collected involvement in aggression or violent offenses by institutional data or pre-recorded official data (Baglivio et al., 2020; Baron & Forde, 2020, p. 2018; Björkenstam et al., 2018; Forsman & Långström, 2012; K. Rose et al., 2020; Tung et al., 2019; Y. Wang et al., 2012; Yampolskaya et al., 2011). Some researchers used open-ended questionnaires without any specific standard scale to collect data about violent offenses or aggression (Brewer-Smyth et al., 2015; Estrada et al., 2021; Grahn et al., 2020).

However, some researchers used precise measurement scales for collecting data. For this purpose, Kokkalera et al.(2018) used the International Self-Report Delinquency Study (ISRD3) questionnaire and asked questions about 12 offenses, DeLisi et al. (2018) used information on Self-report of delinquency employed in the National Youth Survey, Shin et al.(2016) used a 13-item crime questionnaire adopted from the National Longitudinal Study of Adolescent Health Study, Dudeck et al.(2016) measured appetitive aggression by the Appetitive Aggression Scale of 15 items, Ben-David et al. (2015) collected data by Adolescent Behavioral Indicators, Spriggs et al. (2009) used Conflict Tactics Scale (CTS2) and Haapasalo & Moilanen (2004) used 33-item Self-reported criminality Scale (SRCS). However, Casiano et al. (2009) developed their scale for collecting data about violent offenses. Burke et al. (2023) considered nine violent behaviors for their study.

From the previous discussion, it is evident that for measuring violent offending or aggressive behavior, both established and self-generated scales are pretty popular among researchers. Although quite a good diversity exists among the measurement scales used by the researchers, the Buss-Perry Aggression questionnaire is the single scale that is more popular for the studies analysed in this paper (Table 4).

Theory Used in Different Studies

Theories are quite vital in the explanation of human behaviors on the basis of other familial or social stimulus (Adler et al., 2014; Alexander, 2012, 2012; Clarke, 2008; Gottfredson & Hirschi, 1990; Jessor, 2017; Kratcoski et al., 2020; Scott, 2006, 2006; Vold et al., 1998; Wallace & Wolf, 1995; Wright, 2009). Different studies of the selected literature used theories in their theoretical framework or discussion. Social learning theory is the most frequently used theory in the present systematic literature review (five research papers). Burke et al. (2023), Rose et al.(2020), Forsman & Långström (2012), Wang et al. (2012), and Kokkalera et al.(2018) used the idea of social learning theory, where the last article additionally used the idea of power-control theory in the composition. Peng et al. (2022) used Attachment theory (Keller, 2018), Guo et al. (2022) used Crime development theory proposed by Moffitt (1993), Estrada et al. (2021) used social modeling theory, and Baglivio et al. (2020) used the concept of secondary Psychopathy as the foundation of their research.

Chen (2020) concluded that his research supports the accumulated risk theory's basic assumption. Tung et al. (2019) conducted their studies based on evolutionary neurodevelopmental and evolutionary developmental theories. Chang et al. (2021) claimed to Contribute to Walters's (2017) theory of criminal lifestyle but did not use any theoretical framework in their study. Baron and Forde (2020) used the Social schematic theory of crime as the basis of their study. DeLisi et al. (2018) assessed the temperament-based theory of crime in their study. Björkenstam et al.(2018) did not use any specific theory but aligned their research with a model

(Patterson et al., 1989) of parent-child interactions in families. Shin et al. (2016) used the idea of Gottfredson and Hirschi's general theory of crime. Ben-David et al. (2015) and Casiano et al. (2009) used the cycle of violence theory. Nine studies of Grahn et al. (2020), Choi et al. (2017) Dudeck et al.(2016), Keene & Epps (2016), Brewer-Smyth et al. (2015), Yampolskaya et al. (2011), Spriggs et al. (2009), Sarchiapone et al. (2009), and Haapasalo & Moilanen (2004) used no theoretical framework or did not specifically mention about the use any theoretical framework for their study (Table 3).

Table 3. Theory Used in Studies

Authors	Theory Used
Peng et al. (2022)	Attachment theory
Burke et al. (2023)	Social learning theory
Guo et al. (2022)	Crime development theory proposed by Moffitt (1993)
Chang et al. (2021)	Claimed to contribute to the theory of criminal lifestyle.
Estrada et al. (2021)	Social modeling theory
Baglivio et al.(2020)	Secondary Psychopathy
Chen (2020)	The accumulated risk theory
Rose et al. (2020)	Social learning theory
Grahn et al. (2020)	No specific theory was used
Tung et al. (2019)	Based on the framework of evolutionary–neurodevelopmental theory, evolutionary–developmental theory
Baron & Forde (2020)	Social schematic theory of crime
Kokkalera et al.(2018)	Social learning theory and Power-control theory
DeLisi et al. (2018)	Temperament-based theory of crime
Björkenstam et al.(2018)	Patterson et al's model of parent child interactions in families
Choi et al. (2017)	No specific theoretical framework was used
Shin et al. (2016)	Gottfredson and Hirschi's general theory of crime
Dudeck et al.(2016)	No specific theory was used
Keene & Epps (2016)	No specific theory was used
Ben-David et al. (2015)	Cycle of violence theory
Brewer-Smyth et al. (2015)	No specific theory was used
Forsman & Långström (2012)	Social learning theory
Wang et al. (2012)	Social learning theory
Yampolskaya et al. (2011)	No theoretical framework was used
Casiano et al. (2009)	Cycle of violence theory
Spriggs et al. (2009)	No specific theory was used
Sarchiapone et al. (2009)	No specific theory was used
Haapasalo & Moilanen (2004)	No specific theory was used

Factors Associated with Childhood Maltreatment and Violent Exposures

Childhood maltreatment and its impact are widely researched in last decades (Abbiati et al., 2014; Baglivio & Epps, 2016; Brewer-Smyth et al., 2015; Bridges, 1927; Bruffaerts et al., 2010; Fatima et al., 2022; Felitti & Anda, 2010; Ford et al., 2011; Fox et al., 2015; Hamburger et al., 2008; Hillis et al., 2001; Jones et al., 2022; Levenson et al., 2016; Martins et al., 2021; Steinberg & Lassiter, 2018). The present systematic literature review provides valuable insights regarding the complex relationship between childhood maltreatment and violent delinquency in response to other relevant mediating and confounding variables. Self-esteem and self-control were identified by Peng et al. (2022) as essential mediators that affect childhood maltreatment and aggression in their research. Burke et al. (2023) revealed that childhood adversity more severely impacts delinquency among females than their male counterparts.

Guo et al. (2022) highlighted that conduct disorder and crime age are two significant mediators between childhood maltreatment and aggression/ and violent arrests. Similarly, Peng et al. (2022) found self-esteem and self-control as two mediating factors between childhood maltreatment and aggression. On the other hand, Chang et al. (2021) found callous-unemotional traits as an important mediator for two types of maltreatment (sexual abuse and emotional neglect) and violent delinquency. They also showed that sexual abuse has direct and indirect effects, whereas emotional neglect indirectly affects violent delinquency (Chang et al., 2021). Estrada et al. (2021) found that Psychopathy and other environmental factors affect the link for both community and prison-based samples using different measurement scales. In the same way, Baglivio et al. (2020) found that cumulative childhood adversity or maltreatment and its impact on serious, violent, and chronic offending is mediated by Psychopathic features.

Sex difference, as identified by Chen's (2020) study, is an important consideration with no mediating factor, while abuse was found to be an important variable in the study of Rose et al.(2020). Grahn et al. (2020) revealed drugs (non-alcoholic), lower age, less education, and parental problems as important confounders in maltreatment-led violent and non-violent behavioral exposures.

Tung et al. (2019) found that maltreated youths have higher levels of exposure to violent behavior through the influence of parental relationships and friendship engagement. In advancing such an explanation, Baron & Forde (2020) found that violent peers and criminogenic knowledge structure mediate between childhood maltreatment and delinquency.

Björkenstam et al.(2018) indicated violent offending as the mediator between adversity and suicide, showing that individuals with a history of abuse and engaging in violent offending show much delinquent propensity. Conduct disorder was a common psychiatric disorder that led the detainees in South Korea to commit more violent crimes, according to Choi et al. (2017). Shin et al. (2016) studied and found that impulsivity is one crucial mediating factor in understanding the severity of maltreatment outcomes on violent or other criminality.

Dudeck et al. (2016) found studying forensic patients that there is an association between appetite aggression, suicide attempts, and violent delinquency, where childhood adversity makes different pathways to commit such offenses. This study found that appetite aggression is a good predictor of violent delinquency for the patients, but ACEs are not. Narcissistic vulnerability was found as a partial mediator in the study of Keene & Epps (2016) in maltreatment-related aggressive outcomes. Higher exposure to childhood maltreatment increases the risk of violent and non-violent perpetrations, while greater caregiver education reduces the risks of perpetration (Ben-David et al. (2015).

Brewer-Smyth et al.(2015) found that being male, younger age, greater childhood sexual abuse (CSA) by the age of 15 years, and greater neighborhood adversity during childhood are important confounding variables behind individuals' violent exposures. Forshman and Långström (2012) found that environmental and genetic factors confound childhood maltreatment and involvement in violent offending during adulthood. The impact is more for females, but that is not significantly different for males.

Wang et al. (2012) showed that childhood adversity and the commission of violent offenses are related but are significantly different for different forms of maltreatment. In contrast, Yampolskaya et al.(2011) found that maltreatment chronicity rather than maltreatment severity increases the probability of juvenile involvement. Yampolskaya et al. (2011) used the concepts of maltreatment severity and chronicity to understand their impact on the juvenile justice system encountered by minors. Casiano et al. (2009) studied the threat of violence to others, which was dependent on the maltreatment the person faced in their early childhood.

Spriggs et al. (2009) found that rather than age, gender, race, and ethnicity, witnessing violent crimes increases the probability of not having a non-violent relationship. Convictions as minors, being more than one conviction, are important confounding factors in understanding childhood trauma and aggression in male prisoners, as revealed by Sarchiapone et al. (2009). Finally, Haapasalo & Moilanen (2004) established that physically abused children tend to report having committed violent crimes to a great extent in young adulthood.

Gender Dynamics in Maltreatment and Violent Exposures

Several studies in the present systematic review specifically focused on gender-based variation. Gender is a quite essential charactersitics to understand different behavioral exposures (Barak et al., 2018; Mallicoat, 2019). It was found that males experience more violent behaviors than females, but the relationship between childhood maltreatment and violence is stronger among females than males (C. Burke et al., 2023). Chen (2020) identified that males and females respond differently to various types of childhood abuse, leading to different outcomes for violent exposures and other behaviors. Brewer-Smyth et al. (2015) found that committing violent crimes is higher for males, people of younger age, and greater neighborhood adversity. Wang et al. (2012) found that males and females experience significantly different forms of abuse. Men were found to face more physical abuse, whereas females reported physical neglect more frequently, provided that the nature of abuse is eventually reflected in their violent exposures. However, Spriggs et al. (2009) found no significant variation between exposures to violent crimes in childhood and later-life violent behaviors.

Table 4. Characteristics of the Articles Reviewed

Authors	Country	Sample Characteristics	Timeline	Measures	Statistical Operation	Offences
Peng et al. (2022)	China	454 male incarcerated males from two juvenile correctional facilities aged 14–18 years	Cross-sectional	Childhood trauma questionnaire (CTQ-SF: 28 items); the Buss-Perry Aggression Questionnaire (BPAQ: 30 items)	Correlation and Structural equation modelling with bootstrapping	aggression
Burke et al. (2023)	USA	36,309 from the database of noninstitutionalised adults living in the USA	Cross-sectional	Childhood Trauma Questionnaire (CTQ); Conflict Tactics Scale	Latent class Analysis (LCA) and Logistic Regression	Violent behaviour
Guo et al. (2022)	China	Two hundred and two housed drug users (51 females and 151 males)	Cross-sectional data (Using a semi-structured interview and standardised questionnaires)	Childhood Trauma Questionnaire (CTQ); Buss-Perry Aggression Questionnaire: 29 items	Linear regression model, the Synthetic Minority Oversampling Technique (SMOT), Structural Equation Modelling (SEM)	Violent arrests
Chang et al. (2021)	China	Nine hundred and eighty four juvenile participants (441 violent offenders and 543 non-offenders)	Cross-sectional data	28-item Childhood Trauma Questionnaire (CTQ); a Chinese version of the self-report Inventory of Callous-Unemotional Traits-Youth Version (ICU) of 24 items	Correlation and Structural equation modelling with bootstrapping	Violent Delinquency
Estrada et al. (2021)	USA	Community sample of adult persons (N = 232) and prisoners (N = 313)	Cross-sectional	Childhood Trauma Questionnaire-Short Form (CTQ); Open-ended questions for violent crimes	Mediation analysis using PROCESS macros, moderated mediation	Violent behaviour
Baglivio et al.(2020)	USA	64,007 unique juvenile offenders	Longitudinal	Adverse Childhood Experiences (ACE score) for maltreatment; Questions about Serious, Violent, and Chronic (SVC) offences committed before 18 years.	Structural Equation Modelling	Serious, violent, and chronic offending
Chen (2020)	Israel	Sample of 290 inmates (65 women and 225 men) from seven state penitentiaries	Cross-sectional	Childhood Trauma Questionnaire (CTQ): 28 items; Parental Partner Violence (PPV):14 item scale	Nonparametric procedures (Mann-Whitney U-test, and Z for differences between independent proportions) and logistic regressions.	Family violence
Rose et al. (2020)	USA	113 Juvenile (males only violent offenders from a youth forensic facility in the U.S., Convenience sampling	Cross-sectional	Researchers used specific questions from Psychopathy Checklist–Youth Version (PCL-YV) to measure maltreatment and used recorded violent or non-violent sexual crimes as per state law.	Bivariate correlation analysis and logistic regression	Violent sexual and sexual crimes
Grahn et al. (2020)	Sweden	In 14,914 adults, Baseline Addiction Severity Index	Cross-sectional	For measuring abuse, researchers included	Cox regression	Imprisonment

Table 4. Continued

		data (ASI) were merged with national registry data on prison sentences from 2003 to 2016		questions regarding individuals' emotional, physical or sexual abuse. Researchers also measured inmates' engagement in offences by their' sentencing information.		
Tung et al. (2019)	USA	Wave 1 occurred during 1994–1995, involving 20,745 participants in grades 7–12, aged 11–19 years. Subsequently, these individuals were re-interviewed at Wave 2 in 1996 (n = 14,738, ages 13–20), followed by Wave 3 in 2001–2002 (n = 15,197, ages 18–28) after a 6–7 year gap, and finally at Wave 4 in 2008 (n = 15,701, ages 25–34), which occurred 7 years after the previous wave.	Longitudinal	Researchers asked questions about physical abuse, sexual abuse, and neglect from a parent or guardian. They assessed violence by asking questions about the frequency of physical violence in the last year.	Latent growth modelling (LGM)	Violence
Baron and Forde (2020)	Canada	Four hundred homeless street youth (ages 16 and 24)	Cross-sectional	The authors used CTQ to measure childhood maltreatment. For violent crime, they used four items together to make a composite score.	Started with zero-order relationships and finished with Multivariate models.	Violence
Kokkalera et al.(2018)	USA and Indonesia	Two thousand, three hundred and ninety five samples from the USA and 1800 for Indonesia (ISRD 3 Survey)	Cross-sectional	This study measured parental maltreatment by considering two variables, parental violence and interparental violence, each consisting of two questions, whereas it measured violent offending by 12 different questions in the ISRD3 project.	Logistic regressions	Violent offending
DeLisi et al. (2018)	USA	Two hundred and fifty two juvenile offenders (152 Males and 100 Females)	Cross-sectional	Researchers measured childhood trauma using a 28-item Childhood Trauma Questionnaire (CTQ). They also used self-reported delinquency from the National Youth Survey	A series of negative binomial regression models	Violent and non-violent delinquency

Table 4. Continued

				Family Study to assess violent crime.		
Björkenstam et al.(2018)	Sweden	Cohort study of 476,103 young adults	Longitudinal	Childhood Abuse (CA) included eight CAs; Violent crime data was collected from court conviction records.	Poisson regression analysis and binary mediation analysis with logistic regression	Suicide Attempt
Choi et al. (2017)	South Korea	173 juvenile detainees	Cross-sectional	Korean version of the Childhood Trauma Questionnaire (CTQ: 28 items). For violence, the authors included the subscales of total problem behaviour, including aggressive behaviours	Independent t-tests for continuous variables and chi-square or Fisher's exact test for categorical variables	Violent offending
Shin et al. (2016)	USA	337 young adults (18 to 25 years) from the community	Cross-sectional	The authors used the computer-assisted self-interviewing (CASI) method of the Childhood Trauma Questionnaire (CTQ: 25 items) for this study. For violent crimes, they used a 13-item questionnaire adopted from the National Longitudinal Study of Adolescent Health Study.	Structural equation modelling	All forms of crimes
Dudeck et al.(2016)	Germany	55 male forensic psychiatric inpatients	cross-sectional	Adverse childhood experiences by the German version of the Maltreatment and Abuse Chronology of Exposure Scale (MACE): 10 subscales. This study assessed a person's attraction to aggression by the Appetitive Aggression Scale of 15 items.	Generalised linear models	Appetite aggression, Suicide Attempt, violent behaviour
Keene and Epps (2016)	UAS	Four hundred undergraduate students (321 female, 79 male)	Cross-sectional	The Emotional and Physical Abuse Questionnaire (The EPAB) consists of 32 items. The Buss-Perry Aggression Questionnaire is a 29-item scale to measure physical aggression, verbal aggression, anger, and hostility.	Multivariate analysis of covariance (MANCOVA) using Hotelling's Trace statistic, followed by univariate tests post hoc.	Aggression

Table 4. Continued

Ben-David et al. (2015)	USA	6,935 children with (n = 4,470) or without (n = 2,465) maltreatment	Longitudinal	Childhood maltreatment, indicated by any investigated report of child abuse or neglect (CAN) before age 17; Adolescent Behavioural Indicators, including violent delinquency.	Series of Cox regressions	Different Types of perpetration
Brewer-Smyth et al. (2015)	USA	636 male and female offenders (320 male and 316 female state prisoners offenders)	Cross-sectional Cohort study	Childhood adversity: Measured by the Early Trauma Inventory (ETI); Violent crime: Violent crime was evaluated by asking if the inmate had ever committed a violent crime in their lifetime	Chi-squared tests, t-tests, and logistic regression	Violent offending
Forsman & Långström (2012)	Sweden	20–47-year-old twins (n=18,083) from the Swedish population-based Study of Twin Adults	Cross-sectional	Life Stressor Checklist-Revised (LSC-R): six items for maltreatment; conviction data for offences in Sweden 1973-2009 from the Swedish Crime Register	Generalised estimating equation (GEE) analysis by comparing maltreated individuals (cases) with controls.	Violent offending
Wang et al. (2012)	China	2,690 incarcerated adults (2,410 male and 280 female)	Cross-sectional	Childhood Trauma Questionnaire—Short Form (CTQ-SF); Violent Crime refers to offences characterised by violent behaviours (e.g., murder, robbery, and explosion) collected from gaol data	Analysis of variance (ANOVA) and logistic regression	Violent Crimes
Yampolskaya et al. (2011)	USA	13,212 (out of home care) administrative data	Cross-sectional	Researchers recorded four general types of maltreatment and used the Severity of Maltreatment scale to assess their severity. They considered encounters with the criminal justice system for collecting crime data.	Cross-sectional	Juvenile Justice Involvement in Children for Violent and Non-violent crimes
Casiano et al. (2009)	Canada	Nationally representative National Comorbidity Survey Replication (n = 5,692)	Nationally representative database	Researchers assessed childhood maltreatment using three types of experiences (physical abuse, sexual abuse, and witnessing domestic violence. They developed their scale to measure Threats of violence.	Multiple logistic regression analyses	Threats of with guns and other weapons
Spriggs et al. (2009)	USA	Participants in the National Longitudinal Study of Adolescent Health (n=4,794) aged 13–17 years self-reported witnessing violent crime	Longitudinal study	Researchers asked questions about physical or sexual abuse by a parent or caretaker before the respondent was in sixth grade. They measured adolescent dating violence victimisation and the continuation of partner violence victimisation using the Conflict Tactics Scale (CTS2).	Bivariate relationships between covariates and outcome variables using a multivariate multinomial logistic regression model	Dating Violence
Sarchiapone et al. (2009)	Italy	540 male prisoners	Cross-sectional	Childhood Trauma Questionnaire (CTQ: 34-item version of the CTQ); Brown-Goodwin Lifetime History of Aggression (BGHA) interview: 11-item	Correlation and logistic regression	Aggression and Violent crimes
Haapasalo and Moilanen (2004)	Finland	Eighty nine young male prison inmates (records were collected from files and self-reported questionnaire)	Cross-sectional	Childhood Maltreatment: The participants responded to a five-section computerised, structured interview designed by the author; 33-item Self-reported Criminality Scale (SRCS)	Logistic regression analysis	Violent and non-violent offences

Discussion

A comprehensive analysis of 27 articles has shown a clear interlink between different forms of childhood maltreatment and violent offending. The objective of this research was to assess the bibliometric properties of the studies included here and also to understand how the research measured the variables, what theory was adopted, what factors have been incorporated to understand the association of major variables, and if there are any gender-based differences in the analysis. This section aims to analyse and synthesise the findings with relevant discussion to portray an overall picture of this topic.

Database analysis shows that the United States and China are the most contributing countries in this research area. A total of 24 sources indicated that most articles were published jointly with co-authorship. Most relevant journals have an almost evenly distributed number of articles. Karolinska Institutet and the University of South Florida have significant contributions as the most promising institutional affiliations in this research context. For the citation, articles were cited almost nine times more than Chinese articles and almost four times more than Swedish articles. Therefore, it is evident that the USA surpasses all other countries in terms of citation and total number of publications for this search.

This study indicates that different variables have established a clear picture of the complex interplay of various concepts in explaining the association between maltreatment and violent exposures. The measurement of different variables was based on established and self-determined scales. CTQ-SF (28 items) scales and their different local or computer-assisted versions were the most popular measurement scales for childhood maltreatment. For the violent and aggressive measurement, the BPAQ (30 items) was much more popular, with a variety of other delinquency or offence measurement scales (e.g., ISRD3 or self-report delinquency) being much more popular.

The analysis indicates a strong association between childhood maltreatment and violent delinquency/aggressive behaviours. All studies have established this association. It is seen that the severity of such behavioural exposures increases with an increase in maltreatment experiences during childhood. Studies conducted earlier in 2004 focussed little on any further confounding variables (Casiano et al., 2009; Haapasalo & Moilanen, 2004). Over time, the use of mediators and confounding variables has increased. Since 2009, different psychosocial factors have been included in such research. The findings show that different types of childhood abuse often co-occurs with other psychological or social factors. Subsequently, age (Sarchiapone et al., 2009), gender (C. Burke et al., 2023; Chen, 2020; 2012), race, ethnicity (Spriggs et al., 2009), maltreatment chronicity (Yampolskaya et al., 2011), genetic factors, family factors (2012), caregivers' education (2015), Narcissistic vulnerability (Keene & Epps, 2016), aggressive aggression (Dudeck et al., 2016), Impulsivity (Shin et al., 2016), conduct disorder (Choi et al., 2017), suicide (Björkenstam et al., 2018), temperament (DeLisi et al., 2018), parental supervision or closeness (Kokkalera et al., 2018; Tung et al., 2019), peer groups (Baron & Forde, 2020; Tung et al., 2019), drugs (Grahn et al., 2020), psychopathic features (Baglivio et al., 2020; Estrada et al., 2021), callous-unemotional traits, conduct disorder (X. Guo et al., 2022), self-esteem (Peng et al., 2022), and self-control were found to be essential mediators or confounding variables in such studies.

Overall, the theoretical base of the research was predominantly based on theories related to social behaviours (social learning theory, the cycle of violence theory, social schematic theory, social modelling theory, attachment theory, and power-control theory). However, a good number of studies did not directly use any specific theoretical framework.

The overall assessment of the literature established that four broader areas were addressed using confounding variables. These include psychological factors, social or neighbourhood-related factors, genetic factors, and gender differences. The studies indicate that various factors often intersect with the association between childhood maltreatment and violent delinquencies. Socioeconomic disparities, lack of community resources, and lack of family harmony play pivotal roles in this association. The study also indicates that males and females experience different forms of maltreatment (2012). Their responses are also different for various forms of maltreatment. Females were found to exhibit more violent behaviours than males in response to their childhood exposure to maltreatment (C. Burke et al., 2023), although some other studies did not find any significant difference based on gender differences in terms of maltreatment-related violent activities (Spriggs et al., 2009)

This study can help policymakers and practitioners understand the common risk factors of violent behaviours of people rooted in childhood. In such a case, relevant policy formulation may address such maltreatment or abuse of children by implementing different school or community-based interventions (Jurma, 2016; Mann & Reynolds, 2006; Müller-Fabian, 2016). Other countries can consider these facts. Most Muslim countries are found to be less represented in such research. We assume that such research in some Muslim or South Asian countries may reveal meaningful or different experiences that can contribute to academia.

This research also has some limitations that may affect the generalisation of findings. This research only considered the WoS core collection database to ensure the articles' quality of contents and bibliometric information. Many other studies have taken place in different countries and have been published in journals not listed here. Because WoS maintained and preserved comprehensive bibliometric information, we preferred to use it. Moreover, this study prioritised studies that mainly considered psychosocial factors. These selection criteria might affect the comprehensiveness and generalizability of this study.

Analysing the studies, we understand that the number of studies combining variables like neighbourhood social capital or neighbourhood disorganisation on this relationship is much lower. Some other school or peer-related factors may also add value to understanding childhood abuse and violent exposures in the future (Cattarello, 2000; Grunwald et al., 2010; Kim, 2022; Mustaine et al., 2006; Piscitelli, 2019; D. R. Rose, 2000; Stults, 2010, pp. 1965–1995, 2010, pp. 1965–1995; Valdimarsdottir & Bernburg, 2015; Weijters et al., 2009; Weisburd, 2012, 2012). Previous studies were primarily based on cross-sectional data. More studies based on longitudinal data may also reveal important insights.

Conclusion

This systematic review identified various facets of childhood maltreatment experienced by the respondents during their life's onset. The review emphasises that childhood maltreatment significantly impacts the violent behaviour of people as an outcome of their coping mechanisms. The risk factors are not unidimensional. Different physical, sexual, emotional, and other forms of abuse, when accompanied by other risk factors, may become more serious. These factors vary from psychological to social in conceptual proximity. It is essential to understand that controlling violent behaviours should start in people's early-life.

The findings show us that females and males are, in many cases, vulnerable differently in experiencing and responding to different abuses. Therefore, gender-based intervention is essential to ensure a safer childhood for minors. Cross-disciplinary understanding incorporating more factors and combining multinational samples might provide vital outcomes in further studies. The predominant Western monopoly in this research area indicates that other countries should advance such studies to understand the dynamics of these associations in different cultural and geographic contexts. However, this study concludes that childhood maltreatment is a good indicator of people's violent or aggressive behaviours during their later life.

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