The Impact of Childhood Psychological Maltreatment on Mental Health Outcomes in Adulthood: a Systematic Review and Meta-Analysis

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Abstract

Childhood emotional abuse and emotional neglect are the least well-studied forms of childhood abuse due to difficulties in detection and definition. Available evidence suggests associations with multiple adulthood mental health problems in both clinical and non-clinical populations. This systematic review and meta-analysis (PROSPERO registration number CRD42020197833) explored the associations between childhood emotional abuse and neglect and various adulthood mental health problems based on eight databases. There were 79 English and 11 Chinese studies meeting inclusion criteria. The results suggested that childhood emotional abuse and emotional neglect had positive associations with various adulthood mental health problems ($d = 0.02-1.84$) such as depression, anxiety, substance abuse, suicide ideation, or suicide ideation or attempts, personality disorder, eating disorder and other psychological symptoms in the general population and across different geographical regions. Further, the findings suggested that compared with individuals in non-clinical populations, individuals in clinical populations were more likely to have experienced emotional abuse and neglect during their childhood. The review highlights the need for more research on emotional abuse and emotional neglect, especially in non-western countries and the elder populations. They further underline the importance of addressing issues related to childhood emotional abuse/neglect experiences for the prevention and treatment of mental health issues in adulthood.

Keywords

Childhood Psychological Maltreatment, Childhood Emotional Abuse, Childhood Emotional Neglect, Depression and Anxiety, Substance Abuse, Suicide Ideation, Meta-analysis

Introduction

It is well established that different forms of childhood abuse are significantly associated with mental health problems and emotional, cognitive, behavioural, and social outcomes in childhood (Maguire et al., 2015), with difficulties frequently continuing into adulthood (Hughes et al., 2017). According to Moody et al., (2018) who examined self-reports of childhood maltreatment rates worldwide, prevalence of physical abuse ranges from 35.0% to 40.2%; prevalence of sexual abuse ranges from 2.5% to 29.8%; prevalence of emotional abuse ranges from 6.5% to 53.8% and prevalence of neglect ranges from 6.6% to 67.3%. With increasing research and better understanding of child abuse, childhood emotional abuse (CEA) and childhood emotional neglect (CEN) have been also drawing more attention. However, research exploring CEA and CEN lags behind that on other forms of abuse.

CEA refers to continual deliberate mistreatment of a child, which may include intentionally trying to scare, humiliate, ignore, or isolate a child. While it often occurs alongside other forms of abuse, it can also be inflicted on its own (Baker & Festinger, 2011). Broadly defined, CEN refers to caregivers failing to provide necessary care for children (Dubowitz, 2013). In our review, we adopt the slightly more specific definition of CEN as caregivers' failure to recognise, understand or provide what a child needs, and may sometimes refer to a lack of attention to a child (Glaser, 2002). Unlike CEA, CEN may be unintentional, and caregivers are sometimes unaware that they are emotionally neglecting their child (Iwaniec, 2006). An overarching term for behaviours that entail either CEA or CEN, or both is '*Psychological Maltreatment*'. Specific forms of psychological maltreatment may include psychologically isolating, psychologically neglecting, exploiting, and terrorizing a child, or making a child feel unloved, not providing emotional warmth (Garbarino, Guttman, & Seely, 1986).

Previous evidence suggests that the negative impacts of psychological maltreatment during childhood may manifest in numerous ways such as impaired emotional, cognitive, or social development, and lead to mental health outcomes such as depression (Christ et al. 2019), suicide attempts (Falgares et al., 2018), emotional dysregulation (Burns, Jackson, & Harding, 2010), or personality disorder (Goodman et al., 2014) in the general population. Moreover, several studies have suggested links between childhood psychological maltreatment and mental health problems in clinical populations (Xie et al., 2018), for instance, those with eating disorders (Kent et al., 1999), alcohol dependency (Evren et al., 2011), or depressive disorders (Neumman, 2017). Besides that, mental health problems resulting from childhood psychological maltreatment can have multiple secondary effects in terms of social impairment (Armijo, 2017), lost productivity (Doran & Kinchin, 2019) and treatment/support needs (Dixon, Holoshitz, & Nossel, 2016).

There have been numerous systematic reviews and meta-analyses on the associations between childhood abuse and a range of negative consequences. For instance, Maguire et al., (2015) demonstrated the social, emotional, and behavioural features in children who experienced neglect or CEA and found that these children were more likely to exhibit poor academic achievement, were more prone to suicidality, low self-esteem, and were less likely to develop friendships. Hughes et al. (2017) explored the effects of adverse childhood experience on mental health in general population and found individuals who had at least four adverse childhood experiences (ACEs) (all forms of child abuse are within ACEs, including CEA and CEN) had increased risk for all health outcomes studied (e.g., cancer, mental illness, sexual risk-taking, etc) compared with those who did not experience any ACE. Norman et al., (2012) examined the long-term health consequence of childhood physical and CEA and neglect in general population and found that there three types of abuse were significantly associated with depression, drug used, suicide attempts, sexually transmitted infection, and risky sexual

behaviours separately. Angelakis, Austin and Goodling (2020) explored the association between childhood maltreatment and suicide attempts in prisoners. They found that all types of childhood abuse were strongly associated with suicide attempts. To conclude, numerous reviews had explored the associations between different forms of child abuse and mental health in children, general populations, or prisoner population. However, those reviews are limited because they considered and synthesized different types of child abuse together, instead of exploring the specific effects of CEA/CEN. For instance, Maguire et al., (2015) looked at the neglect as a whole, instead of only focusing on emotional neglect. Furthermore, Norman et al., (2012) looked at the isolated effects of CEA/CEN only focused on a limited set of psychosocial outcomes.

To the best of the authors' knowledge – to date, no research has been carried out with a focus on synthesizing current evidence on the relationship between childhood psychological maltreatment by parents (or another caregiving adult living in the same household) and adult mental health. Therefore, a systematic review and meta-analysis of these associations is needed to clarify the extent to which psychological maltreatment during childhood is associated with different mental health outcomes in adulthood. To fill the research gap, our review focuses on psychological maltreatment perpetrated by adults living in the same household as their victim. According to the Office for National Statistics (2016), the perpetrators of psychological abuse are most likely to be the male primary caregivers (35%) (i.e., biological/step/adoptive father) and the female primary caregivers (40%) (i.e., biological/step/adoptive mother). Indeed, in the nuclear family model, parents are among the caregivers who spend most of the time with their children and are the main disciplinarians and as such they tend to be the most common perpetrators of most types of child maltreatment (Devries et al., 2018). The goal of the current study was to address this gap and provide an improved understanding of the consistency and strength of the link between childhood psychological maltreatment and a range of adult mental

health outcomes at both the clinical and sub-clinical level. This systematic review and meta-analyses can provide a more precise estimate of the associations with various mental health outcomes than had been provided by any primary study to date. It also allows us to examine the factors that moderate the magnitude of these associations, and to evaluate whether the field is affected by publication bias. By looking at both studies published in English and Chinese we are also able to start addressing the question of any potential differences between in the links childhood maltreatment and different mental health outcomes. Hence, we here undertake a systematic review and meta-analyses of these relations. There are four primary review questions:

1. What are the long-term effects of childhood psychological maltreatment on adult mental health.
2. What are the unique effects of childhood psychological maltreatment by caregivers on adult mental health after adjusting for other forms of abuse and relevant confounders?
3. How do study-level moderators such as years of publication, study methodological quality, and study location affect these associations?
4. What are the differences of these associations compared with English-language and Chinese-language paper?

Method

This review is reported following the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocol (PRISMA-P) (Moher et al., 2015). The protocol for this systematic review was registered in the International Prospective Register of Systematic Review (PROSPERO) with registration number CRD42020197833 and published in the journal Systematic Review (Xiao et al., 2021).

Search Strategy

The selection of search terms was based on the keywords used in the previous literature examining the impact of childhood psychological maltreatment on adult mental health problems. Table 1 provides an overview of the search terms. The Boolean operators ‘OR’ and ‘AND’ were used to combine terms, with specific syntax adapted for individual databases (an example is provided in Supplementary Material 1). As well as linking mental health and maltreatment terms together, the maltreatment terms were combined with child* and the mental health terms with adult* in order to link the concepts to the relevant developmental stages. We searched the Web of Science, Medline, PubMed, PsycINFO, Applied Social Science Index and Abstract, ERIC and EMBASE databases and ZhiWang for literature written in Chinese.

Eligibility Criteria

We only included studies that met the following criteria: a) participants aged over 18 at assessment of the mental health problem, b) studies that measured CEA and/or CEN before age 18 using prospective longitudinal and retrospective studies, relying on self-or-other-reported questionnaires, interviews, or police or social work records, c) studies that measured mental health problems (standard diagnoses as listed in the DSM-V or ICD-10 or using mental health scores based on validated measures) using self-or-other-reported questionnaires or clinical interviews, d) studies that only assessed childhood psychological maltreatment, CEA and/or CEN or studies that assessed both CEA and CEN and other types of abuse (e.g., physical or sexual), e) studies where the perpetrators were the primary caregivers or an adult living in the same household, f) studies written in English or Chinese.

We excluded the following types of studies: 1) any book chapters, case studies, letter, opinion, and editorials that did not present new data, b) qualitative investigations, c) review papers (e.g., narrative reviews, systematic reviews, or meta-analysis), d) studies that did not

provide an analysis of CEA/CEN linked to a mental health outcomes separately, e) studies that focus on non-parental others (e.g., in institutional care) or where data from primary caregivers or another adults in household could not be disaggregated from the data on abuse perpetrated by others, f) studies where different types of abuse were combined and not separately reported so that it was not possible to obtain an effect for CEA/CEN, g) studies where the outcomes was physical rather than mental conditions.

Study Selection

All articles identified in the searches were screened by two reviewers, co-authors on this paper. Reviewer 1 (ZX) and reviewer 2 (MMB) screened the English language articles while review 1 and reviewer 3 (WSC) screened the Chinese articles. First the titles and abstracts were assessed. Followed by full-text screening conducted on those that met inclusion criteria. Disagreements between the reviewers were resolved by a fourth reviewer (ALM). The reviewers then independently conducted data extraction and study methodological quality assessment.

Data Extraction

Data from each selected study were extracted using an extraction form. The extracted data are presented in Supplementary Materials. ‘Population Data’ includes information regarding: 1) authors’ names, 2) publication year, 3) sample size, 4) location, 5) sample population, 6) sample population demographics, and 7) setting. ‘Study Data’ includes information regarding: 1) study methodology, 2) types of abuse assessed, 3) measurement of CEA/CEN, 4) measurement of mental health outcomes, 5) perpetrator of maltreatment, and 6) age at exposure to maltreatment. ‘Result’ includes information regarding: 1) study findings, 2) odds ratio or adjusted odds ratio where available, 3) other statistical information.

Assessment of Methodological Quality

Classification of risk of bias as measured by the Newcastle-Ottawa Quality Assessment Scale was used to assess both case control studies (e.g., non-longitudinal studies) and cohort studies (e.g., longitudinal studies) (Well et al., 2017). Three main domains with eight sub-domains were included in this assessment: selection (adequateness of case definition, representativeness of the cases, selection of controls and definition of controls), comparability (comparability of cases and controls based on the design or analysis) and exposure (ascertainment of exposure, same method of ascertainment for cases and control and non-response rate). Each study was awarded stars (from none to eight) based on these criteria, with more stars representing lower risk of bias.

Data synthesis and analysis

The narrative synthesis focuses on the main characteristics of each study (i.e., study location, sample size and characteristic, abuse types, abuse measurement, mental health measurement, perpetrators, and study effect size). Studies were organised according to mental health outcomes and population types (i.e., personality disorder, eating disorder, psychological symptoms, suicide ideation, depression and anxiety, substance abuse and clinical population studies).

Of these, due to the restricted number of the reported effect sizes in other areas, only the effects related to three mental health problems/populations (i.e., suicide ideation, depression and anxiety and clinical population) were meta-analysed. A random effects model was used as it was assumed that effect sizes were sampled from a heterogeneous population, i.e., studies were expected to represent fairly substantial differences in method (i.e., types of participants, measurements) and were thus not anticipated to reflect a single underlying effect

size. The ‘metafor’ package for R statistical software was used to carry out the meta-analyses (Viechtbauer, 2010). Due to different statistical information provided in the included papers, we extracted all “r” statistics and converted them into Cohen’s d. If a paper did not provide “r”, we extracted odds ratio and converted it to “r” in an additional step.

Study heterogeneity was assessed qualitatively by examining the characteristics of the studies between CEA and CEN and mental health outcomes. Statistical heterogeneity was assessed by calculating I^2 . Publication bias was assessed using a funnel plot (Higgins & Green, 2011). A trim and fill method (Duval, 2006) was used to statistically test for the possibility of publication bias and its potential impacts. A moderator analysis assessed the study-level moderators such as year of publication, quality of the study, and location of the study.

Results

Overview of Studies

Based on the search for English literature, 2,389 studies were found. Of these, 23 were duplicates, leaving 2,366 studies (see Figure 1). Screening by title left 379 and after screening the abstract, 193 studies remained eligible for full-text screening. In the full-text screening phase studies were excluded because: 1) mental health outcomes were assessed before the age of 18 ($n = 48$); 2) they did not separately analyse psychology maltreatment ($n = 47$); 3) abuse was not perpetrated by primary caregivers ($n = 4$); and 4) outcome variables did not assess mental health ($n = 15$). In total, 79 studies were included in the systematic review.

Based on the search of the Chinese literature, 571 studies were found. Of these, 102 were duplicates, leaving 469 (see Figure 1). After screening by title, 88 studies remained and after abstract screening, 11 studies were eligible for the full-text screening. Studies were excluded in the full-text screening phase because: 1) mental health outcomes assessed before

the age of 18 ($n = 5$); 2) did not measure CEA ($n = 2$); and 3) outcome variables did not assess mental health ($n = 4$). Finally, 11 Chinese studies were included in the systematic review.

For the English-language studies ($n = 79$; 38 studies measured both CEA and CEN, 30 studies measured CEA and 1 study measured CEN only), Supplementary Material 2 shows the main characteristics of all the included studies organised by theme. The 79 studies were published between 1997 and 2020. Fourteen studies conducted longitudinal research or used secondary datasets; only four studies (Afifi et al., 2012, Harford et al., 2014, Taillieu et al., 2016, Waxman et al., 2014) used the exact same secondary dataset for different outcomes. The rest of the studies ($n = 65$) used a case-control study design (non-longitudinal studies). The sample size of the studies ranged from 75 to 34,653. In studies based in non-clinical settings ($n = 48$), most of the studies were conducted in the general population ($n = 21$) and college student ($n = 11$). In the clinical settings ($n = 23$), studies were conducted in various mental health problem patient populations (i.e., depression, bipolar disorder, schizophrenia, mood disorder, substance abuse disorder). Of these, 13 studies compared non-clinical and clinical populations. Four studies only included female (Christ et al., 2019, Haferkamp et al., 2015, Kent et al., 1997, Thompson et al., 2000) and two studies only included male participants (Can et al., 2019, Evren et al., 2016). Most of the studies ($n = 57$) measured all abuse types (physical abuse, physical neglect, sexual abuse, EA and EN), and most ($n = 59$) used the Childhood Trauma Questionnaire (CTQ) or Childhood Trauma Questionnaire-Short Form (CTQ-SF) (i.e., these two questionnaires measure traumatic incidents including physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect). The included studies used various measures for mental health outcomes. These ranged from general mental health measurements (e.g., Epidemiological Studies Depression Scale); to those that corresponded with the DSM-IV classification (e.g., Structured Clinical Interview for DSM-IV Axis I Disorder); few developed their own questions. The perpetrators of the CEA or CEN were

mainly primary caregivers (n = 65), some (n = 13) were parents or adults living in the same household, while only one study examined multiple perpetrators (Kruger et al., 2017).

For the literature written in Chinese (n = 11), Supplementary Material 3 provides the main characteristics of the included studies. Meta-analysis was not possible due to the small number of studies in each outcome group. The 11 studies were published between 2001 and 2018. All the studies used a case-control study design. The sample size of the studies ranged from 110 to 1,502; however, most of the studies (n = 9) were of college students. All the measures were well-established in the Chinese context with acceptable internal consistency ($\alpha > .70$). All studies used measurements that assessed CEA and CEN (i.e., Child Psychological Abuse and Neglect Scale, Childhood Emotional Abuse Scale, Parent-Child Conflict Tactics Scales). The perpetrators of the maltreatment were all parents or caregivers. Measures for mental health outcomes covered various mental health problems, for instance, depression (i.e., Self-Rating Depression Scale, Centre for Epidemiologic Studies Depression Scale), personality disorder (i.e., Symptoms Checklist 90), and suicide ideation (i.e., Positive and Negative Suicide Ideation).

Supplementary Materials 4, 5, 6 and Supplementary Materials 7, 8, 9 provided the available information of the extraction forms mentioned above for English and Chinese studies respectively.

CEA and CEN and Adult Mental Health Outcomes in the English Language Publications

CEA and CEN and Adult Personality Disorder

Across five studies (three in a clinical setting), CEA and CEN were risk factors for the development of Personality Disorders (PD) later in life, even when controlling for other types of abuse, basic demographic, parental psychopathology, and comorbid PD. Specifically, Waxman et al., (2014) found CEN predicted avoidant, paranoid and schizoid PD and CEA

related with borderline, narcissistic and schizotypal PD. Goodman et al., (2014) reported that both CEA and CEN were associated with borderline personality disorder symptoms. Bernstein et al., (1998) explored the associations in substance abuse patients and found both CEA and CEN predicted personality pathology (all clusters). Cohen et al., (2013) and Cohen et al., (2014) used nonpsychotic psychiatric patients and found CEA predicted Cluster C (DSM-5, 2013) (Obsessive-Compulsive, Passive-aggressive, and Self-Defeating) personality disorder traits. The effect size (Cohen's d) of these five studies for CEA ranged from 0.16 to 0.95; for CEN it ranged from 0.16 to 0.59.

CEA and Adult Eating Disorder

In one study (non-clinical setting), CEA was the only form of abuse that predicted unhealthy eating attitudes in adulthood when controlling for other abuse types. Moreover, age at exposure to CEA did not moderate this association (Kent et al., 1997).

CEA and CEN and Adult Suicide Ideation/Attempts and Non-Suicidal Self-Injury Behaviours

Across 11 studies (all non-clinical setting), there were positive associations between CEA/CEN and suicide ideation/attempts, even when adjusting for gender, age, race, or marital status (Harford et al., 2014). Gibb et al., (2001) conducted a 2.5year follow-up study and found the associations between suicidal ideation and greater CEN in childhood were still significant. Briere et al., (2016) found CEA associated with both recent suicide attempts and recent suicidal ideation without attempts. Similarity, Harford et al., (2014), Thompson et al., (2000) and Saracli et al., (2016) reported the associations between CEN and suicide ideation and attempts, as with CEN significantly related with suicidality. However, only one study (Smith et al., 2018) reported a non-significant link between CEA and suicidality. Apart from suicidal ideation or attempts, Buser and Hackney (2012) found CEA significantly related with

non-suicidal self-injury behaviours. The effect size (Cohen's d) of these 11 studies for CEA ranged from 0.11 to 1.28; for CEN ranged from 0.30 to 1.28.

CEA and CEN and Adult Substance Abuse

Across nine studies (one clinical setting) individuals who experienced CEA were more likely than individuals who did not experienced CEA to engage in different kinds of substance abuse, for instance, alcohol (Crouch et al., 2018; Elliott et al., 2014; Mandavia et al., 2016; Yuan et al., 2014), cannabis (Aas et al., 2014), heroin (Afifi et al., 2012) or nicotine (Elliott et al., 2014) abuse. Even when adjusting for demographic factors (age group, race/ethnicity, educational attainment, income, and rurality), most studies still found significant associations. Moreover, Aas et al., (2014) suggested cannabis abuse was significantly associated with CEA in bipolar disorder. Three studies found no gender differences in the relations between CEA and substance abuse. Both males and females who suffered from emotional maltreatment during their childhood were significantly more likely to be injecting drugs (Abajobir et al., 2017), showing alcohol abuse (Crouch et al., 2018), and all types of substance abuse (Afifi et al., 2012). However, Yuan et al., (2014) only found these associations in females. Contrary to the above, one study (Florez et al., 2020) found that CEA was not directly associated with alcohol misuse. Only two studies (Afifi et al., 2012; Elliott et al., 2014) explored the associations between CEN and substance abuse and found it significant. The effect size (Cohen's d) of these nine studies for CEA ranged from 0.30 to 0.85; for CEN ranged from 0.15 to 0.66.

CEA and CEN and Adult Depression and Anxiety

Across 14 studies (all non-clinical setting) there were significant associations between CEA or CEN and adult depression and anxiety. Some studies explored the relations between CEN and

adult depression and anxiety, and found these associations were positive and significant (Balsam et al., 2010; Brown et al., 2016; Crow et al., 2014; Gong & Chan, 2018; Novelo et al., 2018; Sunley et al., 2020; Wright, Crawford, & Del Castillo, 2009). Many of the included studies examined mediators such as behavioural activation (O'Mahen et al., 2015), self-compassion and gratitude (Wu et al., 2018) or moderators such as emotional dysregulation (Crow et al., 2014). The effect size (Cohen's d) of these 14 studies for CEA ranged from 0.56 to 1.40; for CEN ranged from 0.01 to 0.70.

CEA and CEN and Other Psychological Symptoms

Across seven studies (all non-clinical setting), there were positive relations between CEA and CEN and other mental health issues with different levels of specificity (e.g., hallucination, internalizing problems). The included studies assessed various mental health issues, for instance, auditory and visual hallucination (Abajobir et al., 2017), internalizing problems (van Duin et al., 2019), and general psychological symptoms (Dias et al., 2015; Fung, Chung, & Ross, 2020; O Laoide et al., 2018; Sheikh, Abelsen, & Olsen, 2016; Taillieu et al., 2016). Taillieu et al., (2016) found that experiencing CEA and CEN increased the likelihood for mental health problems; CEN was associated with increased odds ($aOR = 1.3$) of depression, dysthymia, and social phobia, while CEA was associated with increased odds ($aOR = 1.6$) for lifetime diagnosis for borderline personality disorder. Fung, Chung, & Ross (2020) found when controlling for other types of abuse, individuals who experienced both emotional abuse and emotional neglect scored the highest for mental health problems (e.g., depression, anxiety, borderline personality disorder, psychopathy), while individuals who experienced only emotional abuse or emotional neglect scored higher than individuals who had not experienced abuse. The effect size (Cohen's d) of these seven studies for CEA ranged from 0.032 to 0.554; for CEN ranged from 0.101 to 0.787.

More CEA and CEN reported in Clinical Populations

Participants in a total of 32 retrospective studies based on adult clinical population representing a range of regions (e.g., USA, UK, China, Turkey, France, Italy, Germany, Brazil, Istanbul, Korea, Norway, Poland, Iran, South Africa, Geneva, New Zealand), reported having experienced more CEA and CEN during their childhood compared to non-clinical populations. All mental health problems were diagnosed based on the DSM-IV or ICD-10 classification. Mental health problems included eating disorder (Amianto et al., 2018), PTSD (Evren et al., 2010; Evren et al., 2016; Haferkamp et al., 2015), major depression disorder (de Mattos Souza et al., 2016), bipolar disorder (Janiri et al., 2015; Etain et al., 2010; Fowke, Ross, & Ashcroft, 2012; Hariri et al., 2015; Kefeli et al., 2018; Ostefjells et al., 2017; Pavlova et al., 2015; Russo et al., 2013; Watson et al., 2014), alcohol use disorder (Can et al., 2019; Potthast et al., 2014), depression (Arnold et al., 2011; Huh et al., 2017; Kounou et al., 2013; Neumann, 2017; Schulz et al., 2017), personality disorder (Zhang et al., 2013), mood disorder (Ventimiglia et al., 2020), schizophrenia (Bruni et al., 2018), substance abuse (Khosravani, et al., 2019; Mirhashem et al., 2017; Price, Connor, & Allen, 2017) and 'other' (Kruger et al., 2017; Sar, Islam, & Ozturk, 2009; Xie et al., 2018). None of the studies explored gender differences, except Russo et al., (2013) who found no gender differences in childhood CEA in bipolar disorder patients. Amianto et al., (2018) found patients with eating disorder experienced more CEA and CEN compared to health control group. Can et al., (2019) and Potthast et al., (2014) found CEA scored higher in alcohol use disorder patients. Haferkamp et al., (2015) suggested that women who suffered from PTSD scored higher in CEA when controlling for other types of abuse. From these findings, it is suggested that clinical populations have higher prevalence of CEA and CEN. The effect size (Cohen's *d*) of these 32 studies for CEA ranged from 0.02 to 1.84; for CEN it ranged from 0.08 to 0.73.

CEA and CEN and Adult Mental Health Outcomes in the Chinese Language Publications

Across 11 studies (one clinical setting) CEA, CEN or psychological maltreatment was associated with various mental health outcomes in the Chinese population, mainly undergraduates. Only one study (Zhang et al., 2018) explored the differences between obsessive-compulsive disorder (OCD) patients and the general population and suggested that people with an OCD diagnosis were more likely to report having experienced psychological abuse during childhood. The retrospective studies drawing their samples from community settings showed significant correlations between childhood psychological maltreatment and self-injury behaviours (Dai et al., 2016; Zhang et al., 2017), suicidal ideation (Yang et al., 2019), aggression (Han et al., 2018), depression and anxiety (Chang & Wang, 2008; Deng et al., 2018; Guo, 2018; Wang & Liu, 2017; Zeng, 2016) and general mental health (Xie et al., 2008). Apart from these associations, some studies also explored the moderators and the mediators of these links. For instance, Deng et al., (2018) found resilience played an important mediating role between college students' depression and childhood CEA; those students who experienced CEA and had higher resilience skill could reduce the chance of suffering depression symptoms. Wang and Liu (2017) suggested that cognitive flexibility played a mediating role of adult depression and CEA. Yang et al., (2019) found rumination was a significant mediator between adult suicide ideation and CEA. One study (Xie et al., 2008) examined gender differences in occurrence rate of CEA, and found the males had higher occurrence rates on both CEA and CEN than females.

Meta-analyses

A random effect model (restricted maximum-likelihood estimator: REML) was used to carry out each of the meta-analyses.

Suicidal Ideation/Attempts. Based on nine studies (included studies are present in Table 2) that examined suicidal ideation/attempts as an adult outcome of CEA. The pooled estimates for the associations between CEA and adult suicide ideation were 0.479 (95%CI [0.156, 0.803], $p < .001$, $\tau^2 = 0.030$, $H^2 = 1.14$) suggesting a medium effect size (Figure 2). The heterogeneity test suggested that the variance between the included studies was not significant ($Q(8) = 8.186$, $p = .416$, $I^2 = 11.94\%$) which indicating that the studies were homogenous to be compared. Using trim and fill method (Duval 2006) to test potential publication bias, it was estimated that five studies were potentially missing ($SE = 1.796$). After adjustment for potential publication bias, the pooled estimated were 0.233 (95%CI [-0.025, 0.490], $p = 0.077$). The test for heterogeneity suggested $Q(13) = 18.844$, $p = .128$, $I^2 = 0$) suggesting that the effect size was smaller after adjustment. Funnel plots are provided in Figure 3.

Depression and Anxiety. Based on the eight included studies (see Table 2), the pooled estimates for the associations between CEA and adult depression and anxiety were 0.36 (95%CI [0.036, 0.687], $p = .030$, $\tau^2 = 0.053$, $H^2 = 1.33$) suggesting a small to medium effect size (Figure 4). The heterogeneity test suggested that the variance between the included studies was not significant ($Q(7) = 9.214$, $p = .238$, $I^2 = 24.82\%$) which demonstrated that the studies were comparable. Using the trim and fill method (Duval, 2006), results estimated that five studies were potentially missing ($SE = 1.648$). After adjusting for potential bias, the pooled estimates were 0.05 (95%CI [-0.113, 0.221], $p = .524$). The test for heterogeneity was $Q(12) = 18.924$, $p = .090$, $I^2 = 0$ suggesting that the effect size was smaller after adjusting potential publication bias. Funnel plots are shown in Figure 5.

Clinical Population. Based on the 15 included studies (see Table 2), the pooled estimates for the associations between CEA and having a clinical diagnosis were 0.2 (95%CI [0.035, 0.365],

$p = .018$, $\tau^2 = 0.013$, $H^2 = 1.16$), suggesting a small to medium effect size. The heterogeneity test suggested that the variances between the included studies were not significant ($Q(14) = 15.952$, $p = .316$, $I^2 = 13.44\%$). Figure 6 depicts the forest plot of the included studies. Using the trim and fill method (Duval 2006), results estimated that seven studies were potentially missing ($SE = 2.228$). After adjusting for the potential bias, the pooled estimates were 0.07 (95%CI [-0.049, 0.202], $p = .23$). The test for heterogeneity was $Q(21) = 31.038$, $p = .073$, $I^2 = 0$, suggesting that effect size was smaller after adjusting the potential publication bias. Funnel plots are shown in Figure 7.

Methodological Quality Assessment

The Newcastle-Ottawa Quality Assessment Scale (Well et al., 2017) was used to assess the quality (range = 0-8) of selected studies. For English studies, there were 61 case-control studies ($M = 5.96$, range = 4-8) (see Supplementary Material 10) and 14 cohort studies ($M = 6.07$, range = 4-8) (see Supplementary Material 11). For the Chinese literature, there were 11 case-control studies ($M = 3.90$, range = 3-5) (see Supplementary Material 12).

Moderator analysis

Moderation analysis was conducted to see if study-level moderators (year of publication, quality of the study and study location) affected the associations between EA on adult mental health. We conducted a moderation analysis for suicidal ideation, depression and anxiety and the clinical population studies. The results suggested that none of these moderators significantly impacted these associations (see Table 3).

Discussion

Findings from the 79 English papers and 11 Chinese papers using data from 132,082 participants over 18-year-old suggest that childhood CEA and CEN is associated with poorer adult mental health. Our primary goals were to review and synthesise evidence that can illuminate the long-term effects of psychological maltreatment on adult mental health and to assess whether these effects were unique after adjusting for other forms of abuse. Our findings suggested childhood psychological maltreatment is associated with mental health outcomes in adulthood that include suicidal ideation, depression, and anxiety, eating disorder, personality disorder, as well as other psychological symptoms. Moreover, the effects from psychological maltreatment remained significant after adjusting for other forms of abuse. Similarly, those belonging to clinical populations defined by adulthood mental health issues (e.g., major depression, bipolar disorder, personality disorder, schizophrenia, etc.) were shown to have experienced more psychological maltreatment during their childhood. The pooled estimates for suicidal ideation, depression, and anxiety, as well as for clinical populations, suggested a small to medium effect size. Except the different measurements and participants involved in English-language and Chinese-language, we found no differences between English literatures and Chinese literatures in the association between CEA/CEN and poorer adult mental health. Moreover, the results from the included studies were not affected by the region of where the studies conducted, suggested that the impacts of CEA/CEN on adult mental health did not differ by countries or regions. Furthermore, except the regions of where the studies conducted, the characteristics of the studies did not affect the results from the included studies, indicated that the impacts of CEA/CEN on adult mental health did not differ by study methodological quality.

Completeness and Applicability of Evidence

This is the first systematic review focused on the long-term mental health correlated of experiencing CEN and CEA perpetrated by caregivers (parents or adults living in the same

household) as victims. Previous systematic reviews have focused on all types of child abuse on adult mental health. For instance, Norman et al., (2012) reported an association between different forms of abuse (physical abuse, EA, and neglect) on various health consequences (e.g., drug use, suicide attempts, depression disorder, risky sexual behaviours), Leeb, Lewis and Zolotor (2011) also suggested adults who suffered from childhood abuse were more likely to develop psychological symptoms or psychiatric disorders. Another recent systematic review (Petrucelli, Davis, & Berman, 2019) explored different forms of childhood maltreatment and their impact on depressed mood, illicit drug use, suicide ideation, obesity, problematic alcohol, or tobacco use. Liu et al., (2018) suggested CEA and CEN were related to non-suicidal self-injury behaviours in their review. The findings from our review, in which we cover varying populations without limitations on gender, ethnicity cultures, and socio-economic status, are thus consistent with previous reviews in suggesting long-term impacts of experiencing childhood abuse.

We also reviewed the Chinese literature which allowed us to examine whether the associations between CEA/CEN and adult mental health generalised to different cultural contexts. The results from Chinese literatures were consistent with the results from English-language studies. Therefore, it can be concluded that the impacts of CEA and CEN on mental health do not differ across different cultures or regions. However, there were some methodological differences worth highlighting. In Chinese literature, researchers only measured CEA and CEN not accompanied by measures of other types of abuse, which may have left the possibility of confounding as it was not possible to statistically control for these in the current analyses. Moreover, only Chang and Wang (2008) used a general population sample, other studies ($n = 9$) used college students and one (Zhang et al., 2018) compared clinical populations and general populations.

Nevertheless, studies across the English and Chinese literatures yielded consistent results, despite differences in types of participants, measurements, publication years and regions. The findings from our review are consistent with the previous review that reviewed all types of child abuses on adult mental health.

Quality of Evidence

During the review process, some research issues were identified. First, there was considerable variability in measurement methods for both psychological maltreatment and mental health outcomes. Using different measures has both benefits and disadvantages. For example, similar results using diverse measurement approaches increases confidence in the findings; however, it is also difficult to compare the results across studies. There are also a few disadvantages of some of the measurement approaches used. First, some studies measured various types of abuse while some only measured CEA and CEN, meaning there was no possibility to adjust for different forms of abuse. Further, some aimed to measure only childhood abuse within the family setting (e.g., physical abuse, sexual abuse, emotional abuse, or neglect), while others aimed to capture more general surroundings such as peer-relations or living environment. Third, age of victimisation also varied widely according to different measurement approaches, from 14 to 18. Finally, the perpetrators who committed the abuse differed. Some were parents or caregivers; parents or another older adolescent or adult; parents or adults in the same household or multiple perpetrators. However, in Chinese studies, the perpetrators of all the included studies were only parents or primary caregivers which showed the consistency.

The English language studies were mainly located in the USA ($n = 32$). There were another 26 studies conducted in high income countries or regions (e.g., UK, France, Poland, Italy, Netherlands, South Korea, Germany, Norway, Portugal, New Zealand, Hongkong, Australia, Geneva) and 21 studies conducted in low- or middle-income countries or regions

(e.g., China, Brazil, Turkey, Iran, South Africa). Our review suggested that the associations between CEA and poor adult mental health are consistent across the world, and this was confirmed by our moderation analysis which tested location as a moderator. The locations of the Chinese studies spanned from the southern to the northern region of China; however, they were mostly from the regions with higher economic development. This may be because in the regions with lower economic development, there are lots of “left-behind children” (i.e., parents moved to other cities for work and left their children at home and asked other relatives or guardians to take care of them). The absence of parents may make the associations between CEA or CEN and adult mental health hard to explore or detect. Studies were mainly conducted between 2010 and 2020, which suggested increasing attention to childhood psychological maltreatment and adult mental health. Moderator analyses suggested that associations between CEA and adult mental health were not affected by the publication year. Finally, results suggested that for English literature, most of the studies had low risk of bias, while for Chinese literature, most of the studies had higher risk of bias. However, for both English and Chinese literature, the quality of study did not affect the associations of CEA/CEN and adult mental health.

Finally, our review highlighted that compared to CEA, CEN was found to have received less research attention. In our review, only 29 English language and 11 Chinese language studies assessed CEN. In general, there are four types of child abuse – physical, sexual, emotional abuse and neglect. Emotional neglect is under the categories of neglect; therefore, some studies investigated neglect as a whole, instead of emotional neglect only. For future research and measurement development, it would be beneficial to focus on the measurements for CEN and its impacts on adult mental health.

Limitations:

The current systematic review and meta-analyses represent the first endeavour to synthesize the English and Chinese literature on the impacts of childhood psychological maltreatment on adult mental health, it also has some limitations. Due to the limited number of studies on some mental health problems (e.g., eating disorders, personality disorder), and articles written in Chinese, it was only possible to carry out meta-analyses on a limited number of outcomes. The lack of studies conducted in non-Western countries is a limitation of existing available literature. As a result, we were not able to explore these associations across different regions such as Africa, India, or South Asia. Last, despite our research team used multiple strategies to screen and extract the literature, we might have missed or misinterpreted some details present in the review literatures.

Implications and Future Research:

This review has several implications on future research, policy or practice on childhood psychological maltreatment and adult mental health. Further, more research on general based samples beyond USA or other developed countries and non-college student sample is needed to enhance the understanding on the impacts of childhood psychological maltreatment on adult mental health. Studies that included both developing and developed countries or regions to understand the prevalence of childhood psychological maltreatment are also needed. While our study aimed to look at the long-term effects of childhood maltreatment into adulthood in general and clinical populations. Longitudinal studies or follow-up studies are needed to understand the longer-term impacts on these associations across the whole lifespan, well into old age. This understanding could help develop prevent but also interventions or training programs across the lifespan that would aims to prevent and alleviate the impacts of the childhood psychological maltreatment on individuals of different ages. For instance, parental training could be beneficial for parents who are unaware whether their behaviours are harmful

to their children. Researchers could also compare the differences in childhood psychological maltreatment in different countries or regions, to explore whether different types of psychological maltreatment behaviours are related to specific mental health problems. For psychological maltreatment, there are no 'standard' behaviours that caregivers perpetrate on their child; the experiences of childhood psychological maltreatment might differ from individual to individual. Therefore, it is worth for researchers to explore different types of childhood psychological maltreatment and the associations on mental health problems. In our review, most of the studies investigated CEA or both CEA and CEN; however, only one study investigated CEN alone. Therefore, further research needs to focus on emotional neglect specifically.

Policies that address the issue of childhood psychological maltreatment are needed. There are policies and laws about sexual and physical abuse; however, for emotional abuse and emotional neglect, the written policies or legal guidance are lag behind. As emotional abuse and emotional neglect are difficult to detect; therefore, for further research, it important to define and develop the measurements or approaches to assess psychological maltreatment. Parents need to be aware of their behaviours towards their child and implement strategies such as adaptive emotional regulation strategies when children misbehave to avoid behaviour consistent with psychological maltreatment. Importantly, childhood psychological maltreatment needs to be acknowledged as a serious public health concern as opposed to a private and social problem, as it is seen now.

Conclusion

Critical Findings:

- This is the first systematic review and meta-analyses that looks at the long-term effects of CEA and CEN on adult mental health.

- CEA and CEN are significantly associated to adult personality disorder, eating disorder, depression, anxiety suicide ideation or attempts, substance abuse, and other psychological symptoms.
- Clinical populations are more likely than non-clinical populations to have experienced emotional abuse or emotional neglect during childhood.
- The associations between CEA/CEN and adult mental health remain significant after adjusting for other types of abuse.
- Moderators such as publication year, region and study methodological quality did not affect the associations between CEA/CEN and adult mental health problems.
- There is consistency of findings in associations between studies conducted in European countries, USA, and Asia, suggesting that impact of CEA/CEN on adult mental health is universal.
- Studies conducted in the Chinese populations showed consistent results with English studies.

Implication for Research, Policy and Practice

- More research studying the associations between CEA/CEN and adult mental health outcomes is needed in elder populations, clinical populations, and in a context beyond the USA or other developed countries.
- Interventions to reduce CEA and CEN may help reduce the burden of adult mental health problems. Parenting training programs could, for example, use the findings from our review as foundation to engage in intervention or coping strategies.
- For clinical populations, childhood experiences may merit exploration in treatment contexts.

- This systematic review provided evidence suggesting possible long-term impacts of childhood psychological maltreatment on adult mental health. Therefore, more attention to CEA and CEN prevention and mitigation is needed.

Declaration of Conflicting Interests

The author(s) declared no potential conflicted of interest with respect to the research, authorship, and/or publication of this article.

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Supplementary Material

Supplementary material for this article is available online.

Reference: (*included studies)

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Table 1

Overview of Search Terms

Childhood emotional abuse and Neglect	Adult mental health
Child abuse	Mental health
Childhood psychological maltreatment	Generalised anxiety disorder
Childhood emotional abuse	Depression
Childhood emotional neglect	Major depression disorder
Psychological aggression	PTSD
Psychological violence	Personality disorder
Psychological domestic violence	Eating disorder
Childhood psychological victimisation	Bipolar disorder
	Schizophrenia
	Panic disorder
	Psychosis
	Social anxiety disorder
	Suicide attempt
	Suicidal ideation
	Non-suicidal self-injury
	Substance abuse

Table 2

Pooled effect size from random-effects meta-analyses

Author	Year	Location	N	r	Effect Size [95%CI]
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Suicide Ideation

Allen et al	2013	N/A	260	0.35	0.75 [-0.41 - 1.91]
Buser & Hackney	2012	USA	390	0.30	0.65 [-0.42 - 1.72]
Falgares et al	2018	Italy	293	0.54	1.28 [-0.11 – 2.67]
Harford et al	2014	USA	34,653	0.10	0.19 [-0.43 – 0.81]
Lee	2015	Korea	1,396	0.23	0.48 [-0.46 – 1.42]
Thompson et al	2000	USA	335	0.43	0.96 [-0.33 – 2.25]
Puzia et al	2013	USA	189	0.06	0.11 [-0.37 – 0.59]
Saracli et al	2016	Turkey	897	0.32	0.69 [-0.42 – 1.80]
Smith et al	2018	USA	91	0.69	1.91 [0.27 – 3.55]
Suicide Ideation Total					0.48 [0.16 – 0.80]

Depression & Anxiety

Balsam et al	2010	USA	669	0.58	1.40 [-0.09 – 2.89]
Christ et al	2019	Netherland	276	0.33	0.70 [-0.43 – 1.83]
Crow et al	2014	USA	3,902	0.45	1.01 [-0.30 – 2.32]
Massing-Schaffer et al	2015	USA	185	0.27	0.56 [-0.46 – 1.58]
McCabe et al	2018	Latinas	548	0.21	0.43 [-0.47 – 1.33]
Novelo et al	2018	Brazil	449	0.38	0.81 [-0.40 – 2.20]
Sunley et al	2020	Netherland	22,551	1.48	0.30 [-0.18 – 0.22]
Depression & Anxiety Total					0.80 [-0.46 – 1.06]

Clinical Population

Arnold et al	2011	USA	5,673	0.68	1.84 [0.22– 3.46]
Can et al	2019	Turkey	328	0.45	0.45 [-0.47 – 1.37]
de Mattos Souza et al	2016	Brazil	473	0.02	0.04 [-0.24 – 0.32]
Janiri et al	2015	Italy	207	0.08	0.15 [-0.37 – 0.67]

Etain et al	2010	France	300	0.21	0.42 [-0.48 – 1.32]
Evren et al	2016	Turkey	190	0.39	0.84 [-0.38 – 2.06]
Jaworska-Andryszewska et al	2018	Poland	52	0.04	0.07 [-0.32 – 0.46]
Kefeli et al	2018	Turkey	80	0.01	0.02 [-0.18 – 0.22]
Kounou et al	2013	France	181	0.34	0.72 [-0.42 – 1.86]
Neumann	2017	Germany	191	0.26	0.54 [-0.46 – 1.54]
Ostefjells et al	2017	Norway	261	0.52	1.22 [-0.19 – 2.63]
Pavlova et al	2015	Geneva	174	0.19	0.38 [-0.47 – 1.23]
Schulz et al	2017	Germany	123	0.28	0.58 [-0.47 – 1.23]
Xie et al	2018	China	679	0.54	1.27 [-0.17 – 2.71]
Zhang et al	2013	China	2,090	0.20	0.41 [-0.47 – 1.29]
Clinical Population Total					0.31 [0.03 – 0.37]

Table 3

Moderator Analyses

	QM (df)	p
Suicide ideation		
Year	0.000 (1)	0.983
Location	2.072 (4)	0.723
QA	8.168 (1)	0.318
Depression & anxiety		
Year	0.266 (1)	0.606
Location	7.998 (4)	0.092
QA	0.068 (1)	0.795

Clinical population

Year	2.709 (1)	0.100
Location	13.105 (10)	0.218
QA	0.050 (1)	0.822

Notes. QA = quality assessment

Figure 1. Flow chart of the systematic review based on PRISMA guidelines.

Figure 2. Forest Plot for CEA and Suicide Ideation

Figure 3. Funnel Plots of the included. Studies of the associations between emotional abuse and suicide ideation (left). Studies of the associations between emotional abuse and suicide ideation used trim and fill method (right).

Figure 4. Forest Plot for CEA and Depression and Anxiety

Figure 5. Funnel Plots of the included. Studies of the associations between emotional abuse and depression and anxiety (left). Studies of the associations between emotional abuse and depression and anxiety used trim and fill method (right).

Figure 6. Forest Plot for CEA and Clinical Population

Figure 7. Funnel Plots of the included. Studies of the associations between emotional abuse and clinical population (left). Studies of the associations between emotional abuse and clinical population used trim and fill method (right).