

## Regular Article

# Adverse childhood experiences and intimate partner violence: A meta-analysis

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### Abstract

Intimate partner violence (IPV) represents a significant public health concern. Adverse childhood experiences (ACEs) represent one risk factor for IPV, however, the results of existing research on the association between ACEs and IPV demonstrate mixed findings. The present research sought to meta-analytically examine the association between ACEs and (a) IPV perpetration and (b) IPV victimization. Moderator analyses were conducted to determine factors that may impact the association between ACEs and IPV involvement. Electronic searches were conducted in MEDLINE, Embase, and PsycINFO in August of 2021. One-hundred and twenty-three records were screened for inclusion. All studies included a measure of ACEs and IPV victimization or perpetration. Among the 27 studies and 41 samples included in the meta-analysis, 65,330 participants were included. The results of the meta-analyses demonstrated that ACEs were positively associated with IPV perpetration and victimization. Significant methodological and measurement moderators further inform our understanding of ACEs and IPV involvement. The present meta-analyses demonstrates that trauma-informed approaches to IPV screening, prevention, and intervention may be useful, given that individuals who are involved with IPV may be more likely to possess a history of ACEs exposure.

**Keywords:** adverse childhood experiences; intimate partner violence; transmission of risk

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Intimate partner violence (IPV), which can include physical, sexual, and/or emotional harm toward a current or former intimate partner (CDC, 2012), is a public health issue of epidemic proportions that impacts individuals of all genders and socioeconomic statuses globally. One commonly examined risk factor for IPV in adulthood is having experienced abuse, neglect, and/or family dysfunction in childhood, which collectively are known as Adverse Childhood Experiences (ACEs; Felitti et al., 1998). Specifically, ACEs include family dysfunction experiences such as parent mental illness, substance use, incarceration, and/or witnessing domestic violence, as well as maltreatment experiences such as physical, sexual, and emotional abuse and neglect, experienced prior to the age of 18 years (Felitti et al., 1998; Ports et al., 2020). Concerted empirical attention has examined associations between ACEs and IPV victimization and perpetration, yielding somewhat mixed results. Thus, the overarching goal of the present research was to clarify existing literature by ascertaining an overall effect size of the association between ACEs and IPV. These results will inform developmental theories of intimate partner violence by contributing to the understanding of equifinality, which suggests that many different risk factors can lead to the same outcome, and multifinality, which posits that a single risk factor has the potential to lead to several outcomes (Cicchetti & Rogosch, 1996). Further, moderator

analyses were conducted to better understand which populations may be at greater risk. A stronger understanding of the risk factors that contribute to IPV victimization and perpetration is critical for informing prevention strategies seeking to identify individuals most at-risk of IPV involvement, and to develop trauma-informed intervention efforts to mitigate the impact of ACEs on IPV.

Research has estimated that the global prevalence of lifetime IPV victimization and IPV perpetration is 30% and 19%, respectively (Devries et al., 2013; Singh et al., 2014). It is important to note that gender<sup>1</sup> differences in reported rates of IPV are nuanced. Existing evidence suggests that men and women experience similar rates of mild IPV (e.g., Chan, 2011; Dim & Elabor-Idemudia, 2020). However, research indicates that women disproportionately experience severe forms of IPV victimization, including physical and psychological victimization, sexual violence, stalking, and homicide (Caldwell et al., 2012; Sabri et al., 2016).

### The economic and psychological burden of intimate partner violence

IPV is associated with a range of far-reaching and negative implications to both society and the individual. From a societal perspective, the costs of IPV victimization are extensive. Among these costs are those related to greater healthcare utilization, such as emergency room and physician visits, legal services, lost productivity and absenteeism,

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job instability, and diminished educational attainment (Adams *et al.*, 2012, 2013; Varcoe *et al.*, 2011). The annual cost of IPV using a sample of Canadian participants who had left abusive relationships was estimated to be \$6.9 billion in 2004 dollars (Varcoe *et al.*, 2011). More recent research conducted in the U.S has estimated the lifetime economic burden of IPV among U.S. adults to be \$3.6 trillion in 2014 dollars (Peterson *et al.*, 2018). While research on the economic costs of IPV perpetration is limited, the estimated annual criminal justice expenditure for convicted perpetrators in the U.S was \$5.7 billion in 2012 dollars (Peterson *et al.*, 2018).

On an individual level, exposure to IPV has been associated with negative impacts to social functioning, mental health, and physical health (Bonomi *et al.*, 2006). The mental health correlates of IPV victimization and perpetration may differ, however. For example, research has found that IPV victimization among women is associated with greater emotional distress and suicide attempts, more severe anxiety and depressive symptoms, greater chronic health conditions and disabilities, lower self-rated health, and significant potential years of life lost compared to women who do not report IPV victimization (Ellsberg *et al.*, 2008; Plichta & Falik, 2001). In contrast, IPV perpetration has been linked to antisocial personality and borderline personality disorders, PTSD, and self-reported unmet mental healthcare needs (Lipsky *et al.*, 2010; Machisa *et al.*, 2016; Spencer, Mallory, *et al.*, 2019). Additional sequelae of IPV include those related to intergenerational harms. That is, IPV may be witnessed by children inside the home, who may experience negative health outcomes associated with IPV exposure as a result. For example, exposure to caregiver IPV has been associated with post-traumatic stress symptoms among children (Telman *et al.*, 2016). Overall, the importance of understanding the risk factors associated with IPV is highlighted by the vast economic toll, harms to individual health, and lasting implications to well-being across generations.

### Implications of adverse childhood experiences

According to Anda *et al.* (2007), more than 6 in 10 people have experienced at least one ACE. Exposure to ACEs has been identified as a risk factor for negative outcomes to both physical and mental health across the lifespan (e.g., Felitti *et al.*, 1998). One possible explanation for the association between ACEs and negative health outcomes may be the impact of ACEs on the body's regulation systems and stress response (Buss *et al.*, 2017). Individuals who are exposed to ACEs, especially those stressors that are severe and chronic, may experience repeated physiological dysregulation, also known as elevated allostatic load. Allostatic load refers to the overstimulation or malfunctioning of the activation of neural, neuroendocrine, and immune responses that can occur when the body is continually faced with stressful situations (McEwen, 1998). Allostatic load can lead to 'wear and tear' on the body that can increase susceptibility to poor health and disease (McEwen, 1998).

The original ACEs study by Felitti *et al.* (1998) demonstrated that exposure to ACEs was associated with increased health risks such as depression, alcohol, illicit drug misuse, cancer, heart disease, and stroke. Collectively, the aforementioned negative health outcomes are among the strongest risk factors for, and leading causes of death, in adults (Mokdad *et al.*, 2004). Moreover, the associations between ACEs and negative health outcomes tend to occur in a dose-response manner; as the number of ACEs increase, so too does morbidity and mortality (Gilbert *et al.*, 2015).

### Theoretical frameworks and mechanisms

Several theoretical frameworks have been put forth in existing research to conceptualize the potential association between ACEs and IPV. For example, social learning theory, which suggests that individuals learn how to behave through observing and modeling the behavior of others (Bandura, 1977), may account for the association between both IPV victimization and perpetration, albeit in unique ways. Previous research suggests that there is overlap between IPV victims and perpetrators, such that an individual can be both a victim and perpetrator of IPV (Tillyer & Wright, 2014). Further, the mechanisms driving the association between ACEs and IPV victimization may differ from those driving perpetration. With respect to IPV perpetration, exposure to ACEs may lead to modeling violent behaviors observed between adults, which were seen during childhood (Voith *et al.*, 2020). This theoretical explanation is supported by research which found that witnessing the abuse of one's mother was the strongest predictor of perpetrating physical IPV compared to all other ACEs items in a sample of Sri Lankan men (Fonseka *et al.*, 2015). In terms of ACEs and IPV victimization, it has been suggested that exposure to ACEs may lead victims of IPV to develop fewer models of healthy relationship behaviors. For example, Ames *et al.* (2013) demonstrated that ACEs exposure was associated with both normative beliefs about IPV and greater IPV involvement. Further, the association between ACEs and IPV involvement may be conceptualized using a life course perspective. This perspective suggests that an individual's health and well-being is shaped by social and temporal contexts of the individual's history (Elder, 1998). Thus, using this framework, ACEs may be conceptualized as social experiences that occur during a developmentally important time that have the capacity to shape current experiences, including IPV involvement.

### Moderator variables

In terms of existing empirical evidence, the majority of existing studies have found support for the association between ACEs and later IPV involvement (e.g., Fanslow *et al.*, 2021; Mair *et al.*, 2012); however, a handful of studies have found weak or no support (e.g., Lünemann *et al.*, 2019; Nikulina *et al.*, 2021). The heterogeneity of past findings points to the need to examine moderator variables to determine when effect sizes for the association between ACEs and IPV may be stronger or weaker, which can help to identify important targets for prevention and intervention efforts. In this study, sample moderators (e.g., gender, age, race/ethnicity), as well as study characteristics (e.g., type of IPV examined, study year) were explored in an effort to explain between-study variability. Each of these potential moderators are discussed in turn below.

#### Gender

Gender differences in the prevalence of IPV perpetration and victimization is mixed in existing literature. Historically, it has been suggested that women were most commonly the victims of IPV, whereas men were most commonly the perpetrators (e.g., Hester, 2013). However, other research suggests the association between gender and IPV is nuanced, such that some existing literature suggests that rates of certain forms of IPV show gender symmetry and are comparable between men and women (e.g., Chan, 2011; Dim & Elabor-Idemudia, 2020). However, past research has found that women perpetrated physical aggression not requiring

clinical intervention more often than males, but women were more likely to require medical treatment for injury following IPV (Ehrensaft et al., 2004), which may demonstrate that differences in IPV based on severity may impact our knowledge of gender differences. Further, the discussion of gender differences in IPV victimization and perpetration is complex and may be impacted by additional factors, such as gender differences in IPV reporting (Chan, 2011). Additionally, the strength of the association between ACEs and IPV may differ among men and women. For example, Mair et al. (2012) demonstrated that, among women, a significant association between ACEs and both IPV victimization and perpetration was found. However, among men, only IPV perpetration was significantly associated with ACEs. Differences found in the prevalence of IPV perpetration and victimization based on gender, as well as differences in the strength of the association between ACEs and IPV based on gender, highlight the importance of investigating gender as a moderating variable that may explain between-study heterogeneity.

### Age

Previous research has found that rates of IPV involvement vary across the lifespan. For example, previous research found that IPV peaked at an older age for women compared to men in a sample of adolescents and young adults, but consistent with general patterns of antisocial behavior (Sweeten et al., 2013), decreased with age for these two genders (Johnson et al., 2015). Further, adolescents and young adults may experience unique risks that are associated with increased IPV, including developmental and environmental factors such as alcohol use (Anderson et al., 2011; Quigley & Leonard, 2000). For example, previous research has suggested that alcohol use is a risk factor for IPV, and adolescence and young adulthood represent a developmental time period where social motivations to engage in substance use may be particularly strong (Anderson et al., 2011). While there is limited research examining the strength of the association between ACEs and IPV across the lifespan, exploration of the role of age on the association between ACEs and IPV may be important for informing and targeting prevention and intervention strategies. Therefore, age was explored as a moderator herein.

### Race/ethnicity

Due to historical and ongoing systemic racism and colonization in Western contexts, disparities in health outcomes persist between racial groups. Almost all IPV research to date has examined these disparities as an individual-level outcome. However, it is critical to note that disparities reflect ongoing racial oppression, and not individual-level deficits. Stemming from this understanding, past research has found that ACEs are experienced differentially across racial and ethnic groups, such that White individuals experience fewer ACEs compared to groups who experience systemic oppression and disadvantage, such as Black and Latinx individuals (Maguire-Jack et al., 2020). Additionally, previous research suggests that rates of IPV differ among racial and ethnic groups (Caetano et al., 2000). Overall, however, there is limited research exploring the associations between ACEs, IPV, and racialization. Given that higher levels of ACEs confer greater risk for negative health outcomes, paired with the limited findings on rates of IPV among racial and ethnic groups, it is important to examine the role of racialization in the association between ACEs and IPV.

### Type of IPV

Existing research on the association between ACEs and IPV have frequently examined the association between ACEs and specific types of IPV (e.g., Cprek et al., 2021; Jones et al., 2018; Miller-Graff & Cheng, 2017; Nikulina et al., 2021). Results suggest that findings are mixed, such that most studies have found significant associations between ACEs and various types of IPV, including physical, sexual, and psychological IPV (Jones et al., 2018; Visser et al., 2016), whereas others have not. For example, Miller-Graff and Cheng (2017) did not find a significant association between ACEs and sexual IPV victimization in their sample of pregnant women. Similarly, Nikulina et al. (2021), who explored this association among college students, did not find a significant association between ACEs and IPV that resulted in injuries. Ascertaining an overall effect size of the association between ACEs and specific types of IPV will be useful for understanding which forms of IPV may have the greatest risk conferred by exposure to ACEs.

### Year of publication

Previous research has found that rates of IPV may change over time. For example, Bott et al. (2019) demonstrated that national reported rates of sexual and physical IPV have declined in some countries and increased in others. Concerted efforts have also been made to implement routine ACEs screening, such as in primary care offices (e.g., Dobson et al., 2020; van Roessel et al., 2021), which may lead to increased awareness and knowledge of ACEs among healthcare providers and greater uptake of routine screening (Bryant & Van Graafeiland, 2020). Taken together, changes in the reporting of IPV and ACEs over time may influence the magnitude of associations. Thus, it is important to examine whether year of study publication moderates the strength of the association between ACEs and IPV in the present meta-analysis.

### Current study

The existing literature assessing the association between ACEs and IPV has led to mixed results, such that some effect sizes in existing research range from small to large (Alvarez et al., 2019; Cunradi et al., 2013), while others do not find a relationship at all (e.g., Johnson et al., 2017; Nikulina et al., 2021). To advance knowledge and inform future directions in the field, as well as prevention and intervention efforts, the present meta-analysis had two central aims. First, this meta-analysis sought to resolve discrepancies in the literature by deriving pooled effect size estimates on the association between ACEs prior to age 18 and later IPV. Given that previous research suggests that correlates of ACEs and each of IPV victimization and perpetration may differ (Afifi et al., 2012; Spencer et al., 2021), two separate meta-analyses examining (a) ACEs to IPV victimization and (b) ACEs to IPV perpetration were conducted. It was hypothesized that ACEs would be positively associated with both IPV victimization and perpetration. A second aim was to conduct exploratory analyses to determine whether the effect size for the association between ACEs and IPV varies based on potential moderator variables.

### Method

#### Definitions of constructs

*Adverse Childhood Experiences* (ACEs) were assessed using cumulative retrospective self-reports. Exposure to child adversity included maltreatment and household dysfunction experienced



prior to age 18. ACEs were measured using either the original 8-item ACEs (Felitti et al., 1998), which included physical abuse, sexual abuse, emotional abuse, parent substance use, parent mental health issues, parent divorce or separation, parent incarceration, and exposure to domestic violence, or the 10-item measure, which included additional items assessing physical and emotional neglect, or an alternative composite measure of ACEs. *Intimate partner violence* included either victimization or perpetration of physical aggression, injury, psychological aggression, and/or sexual violence or coercion measured using either a self-report questionnaire or from review of police records.

### Search strategy

The present meta-analysis used PRISMA guidelines (Moher et al., 2009). We conducted searches using MEDLINE, Embase, and PsycINFO, with the search strategy developed by a health sciences librarian (see Supplemental Table 1 for an example of search terms). Articles included in the present meta-analysis were drawn from the ACEs Catalogue, developed in the Determinants of Child Development Lab at the University of Calgary. This detailed catalog includes all studies ever conducted using the 8-item or 10-item ACEs measure and documents each predictor and outcome variable for each ACEs study in an inventory format for ease of conducting meta-analyses. This catalog was initiated in November 2018 and updated in 2021. The search used to derive this catalog includes the acronym ACEs and “adverse childhood event or experiences”. The year of publication has been limited from 1998, the year that the original ACEs study was published (Felitti et al., 1998), to August 2, 2021. Language or date restrictions were not applied.

### Study inclusion and exclusion criteria

All titles and abstracts yielded from the search strategy were reviewed by two independent coders and disagreements were resolved via a consensus. All full text articles of studies that potentially met inclusion criteria were examined.

#### Inclusion criteria

Studies included in this meta-analysis included those that had (a) an ACEs questionnaire measured using self-report, interviews, or official child protection records; (b) an outcome measure of IPV perpetration and/or victimization that was measured using self-report, interviews, or police records; (c) sufficient information necessary for the calculation of an effect size; and (d) were published in English.

#### Exclusion criteria

Articles were excluded based on: (a) non-empirical publications, including descriptive reports, case studies, or book and narrative reviews; or (b) that utilized a qualitative study design, as this design does not allow for the calculation of an effect size.

### Data extraction

In studies that met inclusion criteria, the following variables were extracted: mean participant age, gender (% men in a sample), race/ethnicity, methodological factors (informant of ACEs and IPV), type of IPV [i.e., physical, psychological, sexual, mixed IPV (more than one type of IPV was assessed)], and whether the study assessed IPV victimization or perpetration (see Table 1). All data were extracted by the first author and one

additional coder for the purpose of establishing interrater reliability of data extraction. Any discrepancies in data extraction were resolved via consensus.

### Data synthesis

One effect size per sample was included within each meta-analysis (IPV perpetration; IPV victimization) to ensure independence of effect sizes. In cases where more than one study was based on a single dataset, the study which possessed the largest sample size and most complete data was included.

### Data analysis

#### Effect size estimation

Meta-analyses were conducted to determine the pooled effect size for each of the associations between ACEs and IPV perpetration and victimization via comprehensive Meta-Analysis Software, Version 3.0 (Biostat). Each study could present effect sizes in different formats, such as odds ratios, correlations, and chi-squares (Borenstein, et al., 2009). Using CMA, effect sizes were transformed into a common metric of correlations ( $r$ ) using CMA's standard transformation formulas. All analyses were performed using random effect models to account for expected differences in population parameters across studies. Consistent with recommendations by Funder and Ozer (2019) for evaluating effect sizes in psychological research, pooled effect sizes of .1, .2, and .3 were interpreted as small, medium, and large in magnitude.

#### Publication bias testing

The selection process for study publication is not random and can favor studies with positive effects (Scheel et al., 2021). Thus, there is the potential for publication bias in systematic reviews of the literature. Accordingly, funnel plots inspection was used to assess for publication bias. In instances where no publication bias is present, effect sizes are represented symmetrically around the pooled effect size in the funnel plot. When a larger number of studies fall to the right of the pooled effect size in the funnel plot, relative to those falling toward the left, it suggests studies are likely missing from the analyses (i.e., publication bias). In such cases, the Duval and Tweedie trim and fill procedure was used, which imputes symmetrical values to balance the funnel plot, and provides an adjusted pooled effect size that accounts for missing studies on the left-hand side of the funnel plot.

#### Moderator analyses

Gender and type of IPV (i.e., physical, emotional, sexual IPV; the term “mixed IPV” was used if the study examined more than one type of IPV in a single analysis) were examined as categorical moderators. Age, race/ethnicity, and publication year were examined as continuous moderators.  $Q$  and  $I^2$  statistics were used to examine the heterogeneity of effect sizes. Examination of moderator variables are warranted when the  $Q$  statistic is significant and/or when the  $I^2$  statistics is greater than 50% (Borenstein et al., 2009). Further, significance of categorical and continuous moderators were determined by the  $Q$  statistic and by mixed-effects model meta-regressions, respectively (Thompson & Higgins, 2002). Categorical moderators with more than three studies per cell were examined (Borenstein et al., 2009).

**Table 1.** Coding system of study variables

Variable	Coding
ACEs measure	1 = 8-item measure
	2 = 10-item measure
	3 = Other comprehensive ACEs measure
ACEs informant	1 = Self-report
	2 = Child abuse records
	3 = Other
IPV role	1 = Victim
	2 = Perpetrator
IPV informant	1 = Self-report
	2 = Hospital/police records
	3 = Other
IPV type	1 = Physical
	2 = Psychological
	3 = Sexual
	4 = Mixed (i.e., more than one type of IPV)
	5 = Other
Race/ethnicity	1 = % White
	2 = % Black
	3 = % Asian
	4 = % Latinx
	5 = % Indigenous
	6 = % Other
Participant gender	% Male
Participant age	Continuous (age in months)
Study design	0 = Cross-sectional
	1 = Longitudinal
Publication year	Continuous (year)

## Results

### Studies included

The PRISMA diagram (Figure 1) demonstrates that 123 non-duplicate records were yielded by the initial search. Subsequently, all full text articles were reviewed, and 27 studies (41 samples, 65,330 participants) were included in the present meta-analysis. In total,  $n = 12$  studies reported on IPV perpetration and  $n = 23$  studies reported on IPV victimization.

### Sample characteristics

All study characteristics can be found in Table 2. Nineteen (70.37%) studies were conducted in North America, four (14.81%) in Europe, and one (3.70%) study in each of Asia, Africa, Oceania, and a multi-country study, respectively. Across all included studies, 33.84% of participants identified as male and the mean age was 32.10 years (age range, 14–56.9). The breakdown of race/ethnicity across studies with available data is as follows: White (44.78%), Black (20.21%), Latinx (11.2%), Asian (14.80%), Indigenous (1.96%), Mixed race/ethnicity (1.23%),

and Other race/ethnicity (2.15%). Of note, all included studies utilized a self-report measure of IPV.

### Meta-analytic results for ACEs and IPV perpetration

#### Pooled effect size

A total of 15 samples were available for this random-effects meta-analysis, which produced a significant pooled effect size of  $r = .172$ , (95% CI: [.119, .223]),  $p < .001$  (see Figure 2). Examination of the funnel plot revealed symmetry, suggesting that no publication bias was detected.

#### Moderator analyses

Between-study heterogeneity was indicated ( $Q = 253.57$ ,  $p < .001$  and  $I^2 = 94.48$ ) and thus, moderators were explored (see Table 3). Publication year and gender were not significant moderators. While there are no clear rules regarding the number of studies necessary to conduct a moderator analysis, some research has suggested that ten studies are needed for each covariate in a meta-regression (see Borenstein et al., 2009; Higgins et al., 2019). Thus, in keeping with this conservative estimate, type of IPV, racialization, and participant age were not examined as moderators for the association between ACEs and IPV perpetration.

### Meta-analytic results for ACEs and IPV victimization

#### Pooled effect size

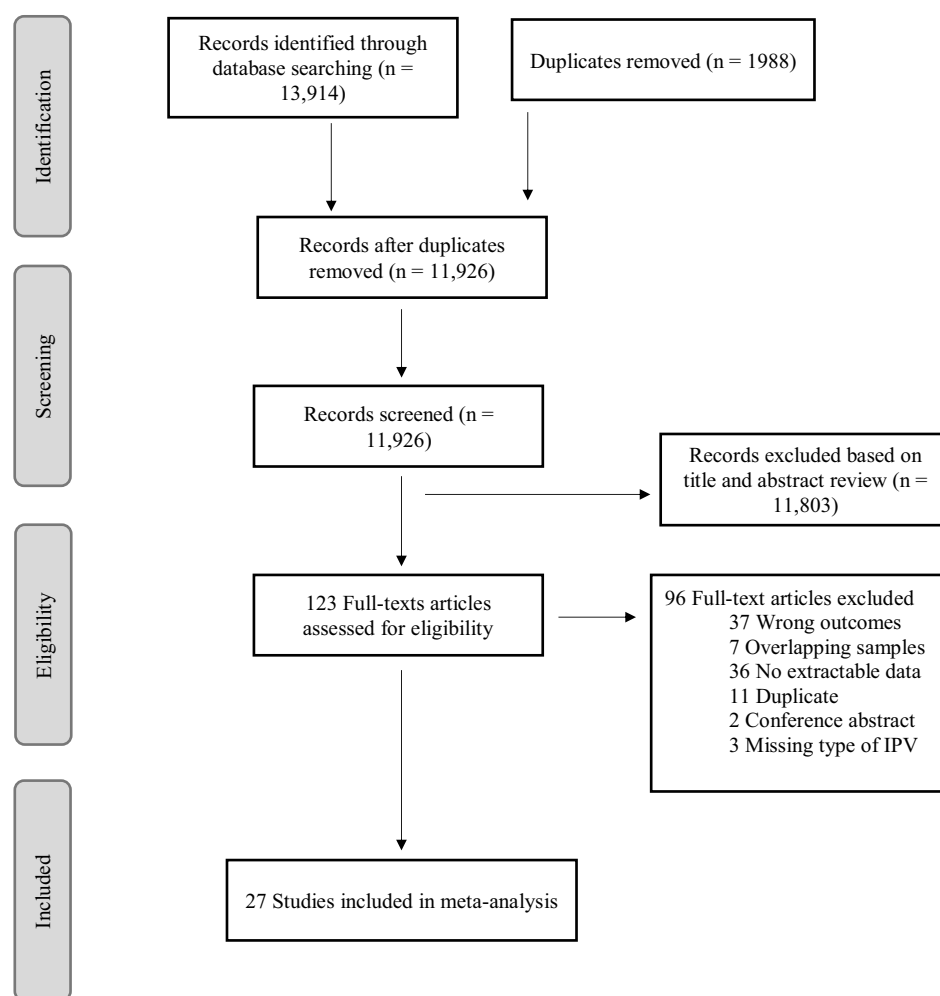
A total of 26 samples were available for this random-effects meta-analysis, which produced a significant pooled effect size of  $r = .200$ , (95% CI: [.143, .255])  $p < .001$ , (see Figure 3). Examination of the funnel plot revealed symmetry, suggesting no publication bias.

#### Moderator analyses

Between-study heterogeneity was indicated ( $Q = 489.743$ ,  $p < .001$  and  $I^2 = 94.90$ ) and moderators were explored (see Table 4). Participant age and year of publication emerged as significant moderators. Results demonstrated that effect sizes were stronger among studies with younger participants  $b = -.006$ , (CI: [−.012, −.0003]),  $p = .041$ . The moderator analysis also demonstrated that the year of publication was significant, such that effect sizes were stronger in more recently published studies  $b = .024$ , (CI: [.011, .037]),  $p < .001$ . Racialization status and gender did not emerge as significant moderators. The moderator analysis for type of IPV was not conducted due to fewer than 10 studies reporting on this moderator.

## Discussion

The present meta-analyses examined the association between ACEs and both IPV victimization and perpetration. Results demonstrated small to medium effect sizes, indicating that higher ACEs scores, referring to abuse, neglect, and household dysfunction experienced prior to the age of 18, were associated with greater IPV perpetration ( $r = .17$ ) and victimization ( $r = .20$ ) experiences. These findings are consistent with previous literature hypothesizing that ACEs are associated with greater involvement in IPV (e.g., Anda et al., 2006; Cunradi et al., 2013). The results of moderator analyses demonstrated that the association between ACEs and IPV victimization specifically was stronger among more recently published studies and studies that included younger participants. Overall, results contribute to a stronger understanding of the association between exposure to ACEs and later IPV and, more



generally, the body of literature that supports the far-reaching negative implications of ACEs on well-being.

There are several possible mechanisms proposed to account for the association between ACEs and IPV involvement, many of which may interact to increase risk for IPV. It has been proposed that parent–child attachment may play a role, such that abuse perpetrated by a caregiving figure (e.g., father; stepfather) towards the child or the child’s attachment figure (e.g., mother) may impact the child’s sense of safety and security. When a child’s safety and security is threatened, they may develop the perception that the world is hostile and engage in more aggressive tendencies towards others as an adaptation process (Ainsworth, 1989; Egeland *et al.*, 1993; Widom & Wilson, 2015). The association between ACEs and IPV may also be explained through neurophysiological mechanisms. De Bellis (2001) indicated that the association between violence experienced during childhood and physiological changes may lead to violent behavior perpetration. Specifically, repeated exposure to stress can lead to physiological stress responses that have negative implications for neurological development. This, in turn, can lead to impairments in stress responses and coping, and the management of emotional arousal, thereby increasing the likelihood of engaging in violent behavior. Finally, it is also possible that ACEs may be related to IPV through behavioral genetics, such that genes associated with violent behaviors may be shared between parents and offspring. For example, past research has identified negative emotionality to be a heritable personality trait

and a trait that has been associated with IPV involvement (Blonigen *et al.*, 2005; Moffitt *et al.*, 2000). As such, genetics may explain the tendency for why some individuals who are maltreated by parents go on to perpetrate maltreatment in adulthood (Hines & Saudino, 2002). These potential viable mechanisms are currently largely untested empirically. Further, critical theory may also help conceptualize the association between ACEs and IPV, such that both ACEs and IPV may occur as a result of intersecting sources of oppression including those related to racism and sexism (Crenshaw, 1991; Kelly, 2011; Williams-Butler *et al.*, 2022). Thus, stronger understanding of the mechanisms accounting for the association between ACEs and IPV are needed.

The present finding that exposure to ACEs is positively associated with later IPV involvement may serve as a starting point for future research that examines the cycle of risk and violence across generations. Two concepts that have been used to explain risks transmitted between generations include homotypic and heterotypic continuity (Berzenski *et al.*, 2014). Homotypic continuity refers to children who experience the same form of maltreatment as their parents. For example, a parent who was physically abused as a child then has a child who also experiences physical abuse. In the case of homotypic continuity, the same form of maltreatment is transmitted across generations. In terms of the homotypic continuity of IPV, previous research has shown that witnessing IPV among one’s parents was associated with being 1.96–3.01 times more likely to be a victim of IPV and 1.86–2.96 times more likely

**Table 2.** Characteristics of studies included

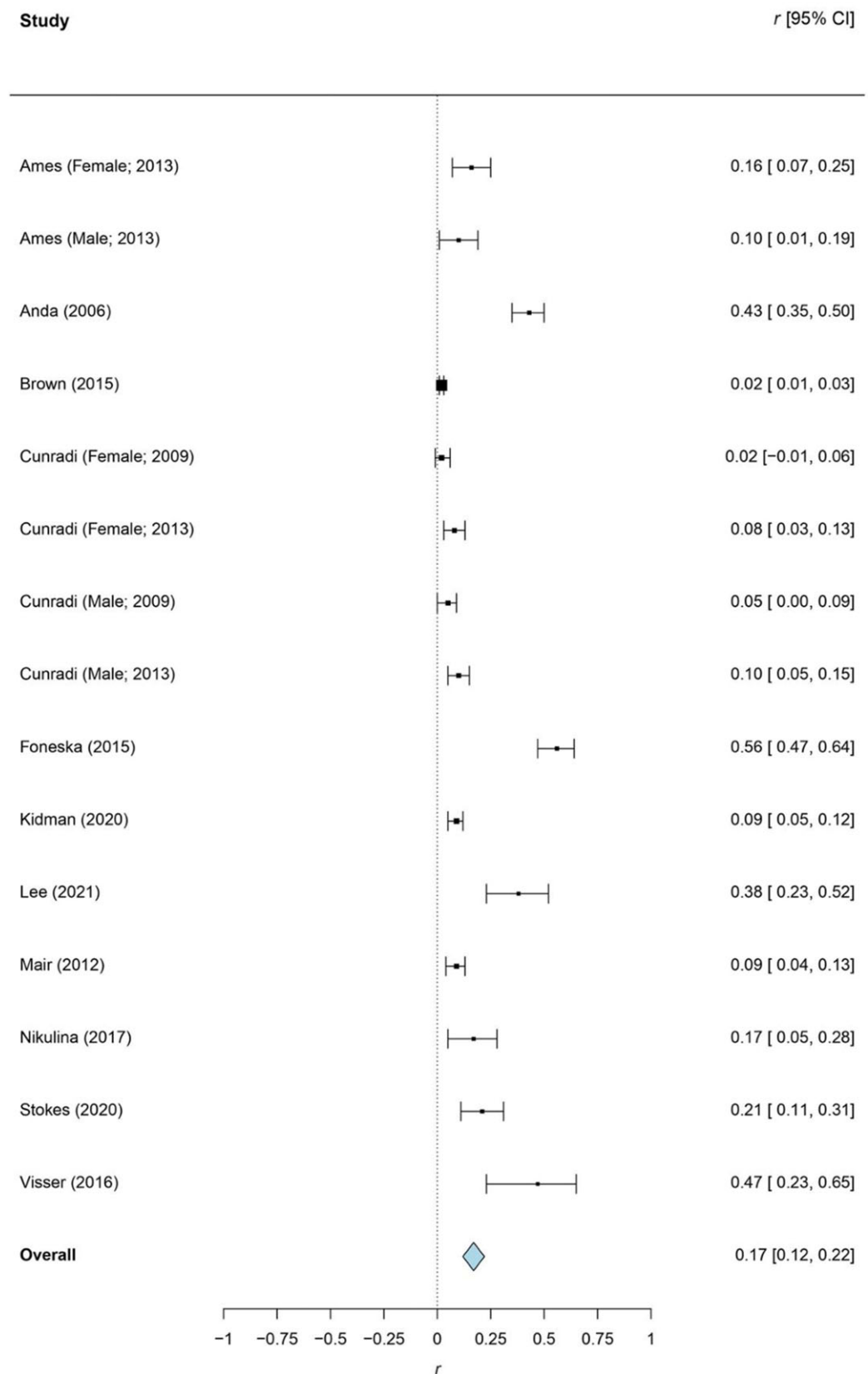
Reference	N	Mean age (years)	% male	Country	IPV involvement	Type of IPV	Name of IPV measure	Informant of IPV	Type of ACEs measure
Ames et al. (2013)	970	39.8	50	USA	Victim, perpetrator	Physical Assault	CTS	Self-report	Other
Anda et al. (2006)	8692	56.9	46	USA	Perpetrator	Mixed	Other	Self-report	8-item
Brown et al. (2015)	25,654	–	50.8	USA	Perpetrator	Mixed	Other	Self-report	Other
Cprek et al. (2021)	2900	–	41.5	USA	Victim	Mixed	Other	Self-report	10-item
Cunradi et al. (2008)	1696	–	50	USA	Victim, perpetrator	Physical	CTS	Self-report	Other
Cunradi et al. (2013)	3506	41.89	50	USA	Victim, perpetrator	Physical	CTS	Self-report	Other
Daugherty et al. (2022)	55	40.79	0	Spain	Victim	Mixed	CAS-SF	Self-report	10-item
Fanslow et al. (2021)	2786	–	51.63	New Zealand	Victim	Mixed	Other	Self-report	8-item
Fonseka et al. (2015)	1252	–	100	Sri Lanka	Perpetrator	Mixed	Other	Self-report	Other
Gerke (2018)	164	25.01	100	USA	Victim	Mixed	IPV-GBM	Self-report	Other
Johnson et al. (2017)	32	–	0	USA	Victim	Mixed	HARK-C	Self-report	10-item
Jones et al. (2018)	355	36.6	0	USA	Victim	Mixed	CTS-Revised	Self-report	10-item
Kidman & Kohler (2020)	586	14	–	Malawi	Victim, perpetrator	Mixed	Adapted WHO VAWI	Self-report	Other
Lee et al. (2021)	1127	42.05	100	USA	Perpetrator	Physical	Other	Self-report	10-item
Li et al. (2020)	475	32.6	0	USA	Victim	Mixed	Chinese AAS-C	Self-report	10-item
Lipscomb et al. (2019)	4231	–	0	USA	Victim	Mixed	Other	Self-report	Other
Mair et al. (2012)	3722	41.8	50	USA	Victim, perpetrator	Physical	Other	Self-report	Other
Miller-Graff and Cheng (2017)	101	26	0	USA	Victim	Mixed	Revised CTS	Self-report	10-item
Musa et al. (2018)	400	20.4	41.5	Bosnia and Herzegovina	Victim	Mixed	Other	Self-report	Other
Nikulina et al. (2021)	284	20.05	32	USA	Victim, perpetrator	Mixed	CTS-2	Self-report	Other
Paulson and Miller-Graff (2019)	83	26.59	0	USA	Victim	Mixed	Revised CTS	Self-report	10-item
Riedl et al. (2020)	2392	–	45.99	Austria	Victim	Mixed	German HITS Scale	Self-report	Other
Scrafford et al. (2019)	76	26.4	0	USA	Victim	Mixed	Revised CTS	Self-report	10-item
Son et al. (2020)	575	22.72	20.4	USA/Canada	Victim	Mixed	Other	Self-report	Other
Stokes et al. (2020)	3030	–	50	Brazil, Bulgaria, China, Lebanon, Nigeria, USA	Victim, perpetrator	Physical	Revised CTS	Self-report	Other
Suarez et al. (2021)	131	–	0	USA	Victim	Mixed	Other	Self-report	Other
Visser et al. (2016)	55	–	0	Netherlands	Victim, perpetrator	Mixed	Dutch Revised CTS	Self-report	10-item

ACEs: Adverse childhood experiences; IPV: Intimate partner violence.

to perpetrate IPV in one's own relationship (Ehrensaft et al., 2004; Franklin et al., 2012; Islam et al., 2014).

In contrast, heterotypic continuity refers to parents who experience a different form of maltreatment compared to their own children. In the case of heterotypic continuity across generations, both the parent and child have been maltreated, albeit in different

ways. Past research supporting heterotypic continuity includes a meta-analysis demonstrating that childhood maltreatment (i.e., physical, sexual, and emotional abuse) and witnessing IPV in the family of origin were both significantly correlated with adult experiences with IPV (Park & Kim, 2018). A separate meta-analysis conducted by Godbout et al. (2019) similarly found that



**Figure 2.** Forest plot of effect sizes for the association between ACEs and IPV perpetration.

witnessing IPV, as well as experiencing physical, psychological, and sexual abuse, were all significantly associated with IPV perpetration. When transformed to odds ratios, the results of the present meta-analyses demonstrated that exposure to ACEs was associated

with 2.00-fold increased odds of experiencing IPV victimization and 1.72-fold increased odds of enacting IPV perpetration. As such, the present research contributes to the understanding that rates of homotypic and heterotypic continuity were generally consistent



**Table 3.** Moderator analyses for the association between ACEs and IPV perpetration

Continuous moderators	<i>k</i>	<i>b</i>	95% CI	<i>z</i> score	<i>p</i>
% male	14	.0009	−.0006, .002	1.12	.261
Publication year	15	.004	−.010, .018	.61	.544

between each other, and with those of homotypic continuity of IPV demonstrated in previous studies. It stands to reason that while a history of IPV in one generation will increase risk for IPV in the next generation, ACEs can also confer risk for later IPV via heterotypic continuity. Overall, these findings are important for strengthening our understanding of risk factors for IPV, which may help inform prevention efforts.

Several moderators were identified for the association between ACEs and IPV victimization specifically. First, the association was stronger among studies that included younger participants. The direction of this finding is consistent with existing research that has found antisocial behavior tends to peak in early adulthood and decrease with age (Farrington, 1986). The concept of an age-crime curve has been used to describe the typical pattern of delinquent behavior generally, which suggests that crime and delinquency peak in late adolescence and decline throughout adulthood (Johnson et al., 2015; Sweeten et al., 2013). The finding that the association between ACEs and IPV was weaker among studies with older participants may also be explained by the fact that adulthood is associated with greater responsibility, including those related to careers and parenthood, and this transition generally leads to a decrease in crime (Massoglia & Uggen, 2010). Further, older adulthood is associated with several protective factors for IPV, such as increased social capital and financial stability (Zweig, 2004).

Second, the association between ACEs and IPV victimization was stronger among more recently published studies. This finding may be due to increased screening for both ACEs and IPV, which may have implications for reducing stigma surrounding disclosure of both experiences when participating in research studies. Previous literature has demonstrated that self-stigmatization of IPV involvement was associated with concealment of IPV (Overstreet et al., 2017). However, more recent efforts may help to decrease stigma. For example, ACEs screening has been implemented in routine primary care (Glowa et al., 2016; van Roessel et al., 2021) and has been rated with a high degree of acceptability by participants, possibly speaking to more frequent discussion of, and greater openness towards previous experiences of adversity (Glowa et al., 2016). Similarly, efforts to increase IPV screening and the development of intervention efforts may serve to decrease stigma surrounding IPV disclosure (Burnett et al., 2021), possibly accounting for the stronger association between ACEs and IPV found in more recent studies.

### Clinical Implications

The results of the present meta-analyses help to clarify existing mixed findings on the association between ACEs and IPV involvement. These findings demonstrate that trauma-informed care regarding IPV screening, intervention, and prevention may be helpful to consider, given that individuals who are involved with IPV may be more likely to possess a history of ACEs exposure. For example, past research had identified inquiring about past traumatic experiences, minimizing distress and increasing autonomy, and appropriate knowledge of trauma symptoms as

important tenets of trauma-informed care (Reeves, 2015). It is important to note that the results of the present study demonstrate small to medium effect sizes in the association between ACEs and each of IPV victimization and perpetration. Thus, it will be imperative to further explore mechanisms that may account for the association between ACEs and IPV. For example, past research has demonstrated that substance use and mental health concerns are both risk factors for IPV involvement (Petersson et al., 2019; Reingle et al., 2014). These risk factors have also been positively correlated with ACEs exposure in existing literature (Felitti et al., 1998; Hughes et al., 2017; Petruccelli et al., 2019). Future research may wish to disentangle how these risk factors intersect, given that stronger understanding of these associations may inform targets of intervention.

The results of the present study also identify moderators of the association between ACEs and IPV. These findings serve to better understand factors that may lead to elevated risk for IPV among individuals with a history of ACEs. For example, the finding that the association between ACEs and IPV victimization was stronger among younger participants supports the continued need for support of early prevention and intervention efforts that incorporate IPV education and skills building for healthy relationships in school curriculums and parenting interventions (e.g., Exner-Cortens et al., 2019). In all, the present research suggests that a focus on well-being, early education and prevention efforts, increased IPV screening, and trauma-focused intervention may be necessary to mitigate the risk of IPV and bolster well-being.

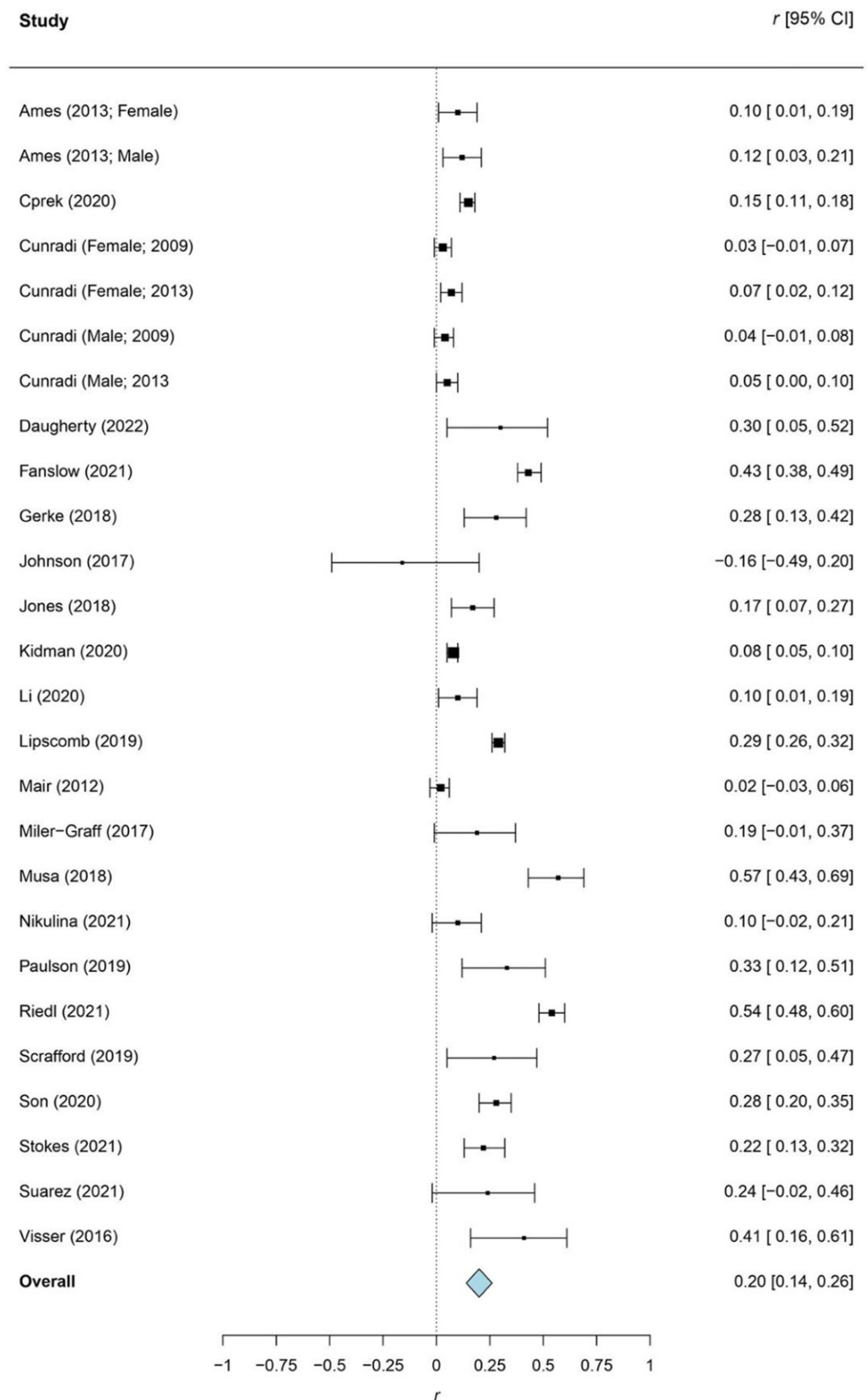
### Limitations

The present meta-analysis is not without its limitations. First, all included studies were cross-sectional, which precludes the examination of risk factors and sequelae of IPV. Additionally, all studies included in the present meta-analyses utilized retrospective recall of ACEs, which may be impacted by memory inaccuracies associated with recall of childhood events or biased by personality traits (Reuben et al., 2016; Usher & Neisser, 1993). Further, the present study includes an overrepresentation of studies conducted in North America. This may limit the generalizability of the findings, given that previous data collected by the Global Health Observatory Data Repository (2019) has found variation in prevalence rates of IPV globally, such that the highest rates were found in Africa and South Asia. In contrast, the lowest rates of reported IPV were found in East Asia, Western Europe, and North America. Thus, future research should seek to ascertain prevalence rates of reported IPV using representative global samples to increase generalizability of results.

Additionally, 10 of the studies included in the present meta-analysis utilized the Conflict Tactics Scale (CTS; Straus, 1979), which may not fully capture an appropriate breadth of IPV experiences due to its brevity (Schafer, 1996). Studies that have used this scale have often found that rates of IPV perpetration were similar between men and women (Morse, 1995), however researchers have suggested that the gender parity found when using the CTS may be related to a lack of assessment of contextual factors, including the motivation and intention of IPV (Dobash & Dobash, 2004; Jones et al., 2017). As such, the inclusion of multiple studies that utilized the CTS in the present meta-analysis may also account for the finding that gender was not a significant moderator.

### Future directions

Existing literature assessing the association between ACEs and IPV has largely utilized participants that identify as heterosexual. In



**Figure 3.** Forest plot of effect sizes for the association between ACEs and IPV victimization.

comparison, little is known about IPV among 2SLGBTQIA+ individuals. Indeed, none of the studies included in the present meta-analysis examined IPV among 2SLGBTQIA+ participants. Existing research has presented mixed results, such that some

literature suggests 2SLGBTQIA+ populations experience rates of IPV similar to that of heterosexual women (Ard & Makadon, 2011) and others found both 2SLGBTQIA+ youth and adults reported more frequent experiences of IPV compared to their

**Table 4.** Moderator analyses for the association between ACEs and IPV victimization

Continuous moderators	<i>k</i>	<i>b</i>	95% CI	<i>z</i> score	<i>p</i>
Participant age	16	-.006	-.012, -.0003	-2.04	.041
% male	25	-.0002	-.002, .0015	-.26	.797
% racially minoritized	10	-.0007	-.005, .003	-.34	.737
Publication year	26	.026	.013, .039	3.93	<.001

heterosexual and/or cisgender counterparts (Dank et al., 2013; Kattari et al., 2022; Peitzmeier et al., 2020). Beyond this, 2SLGBTQIA+ individuals may face unique risks related to IPV. For example, due to societal homophobia and transphobia, past research suggests that 2SLGBTQIA+ individuals experience elevated risk for violence generally (Hein & Scharer, 2013). As such, examining the association between ACEs and IPV among 2SLGBTQIA+ individuals will contribute to our understanding of IPV among individuals already at elevated risk due to their gender and/or sexuality.

Future avenues of research should also seek to identify resiliency factors that buffer the risk for IPV among individuals who have experienced ACEs. A stronger understanding of resiliency factors is important, as ACEs are not deterministic of poor outcomes for all individuals. For example, past research has demonstrated that individuals who reported IPV involvement, compared to those who did not, indicated lower levels of self-reported social support (Dias et al., 2019). Research has also found that the association between ACEs and marital conflict was stronger when individuals reported lower rates of social support; however, the association between ACEs and marital conflict was comparatively weaker when higher levels of social support were reported (Madigan et al., 2016). Thus, social support can act as a potential resiliency factor that can offset the negative consequences of having experienced ACEs. Not only can social support mitigate the risk of conflict within intimate relationships, but greater social support has also been associated with leaving an abusive relationship (Johnson & Johnson, 2013). While previous research has found that interventions that promote social support and community advocacy improved mental health outcomes among survivors of IPV (e.g., Constantino et al., 2005; Ogbe et al., 2020), enhancing social support, for example including community members as a resource (e.g., Ogbe et al., 2020), may be a beneficial prevention strategy for IPV, particularly among individuals with elevated ACEs scores. Indeed, past research has demonstrated that IPV screening alone may not be sufficient without the implementation of intervention for individuals identified to be experiencing IPV (MacMillan et al., 2006). Further, benevolent childhood experiences, which refer to positive experiences prior to the age of 18, including a sense of safety, security, and predictability within the home, can protect against the negative impact of ACEs (Hou et al., 2022) and represent an area of future research to better understand resiliency factors that buffer the association between ACEs and IPV.

The present research was not able to examine the type of IPV as a moderator variable due to too few studies reporting on this data. Ascertaining whether the strength of the association between ACEs and IPV differ based on IPV type (e.g., physical, psychological, sexual) will be useful for understanding risk factors for IPV. For example, some studies have found significant associations between

ACEs and various types of IPV, including physical, sexual, and psychological IPV (Jones et al., 2018; Visser et al., 2016), whereas others have not. Further, Johnson's typology of IPV (2010) suggests that IPV may differ based on motivation and intention, such that intimate terrorism (i.e., behaviors with the goal of coercive control and most commonly enacted by men) differs from violent resistance (i.e., acts of violence typically in self-defense and are more commonly enacted by women) and situation couple violence (i.e., conflict between partners that escalates to IPV and is enacted by both men and women). Thus, examination of the association between ACEs and each type of IPV will inform our understanding of whether ACEs confer risk for IPV differentially based on type.

Future avenues of research should also focus on lesser researched forms of IPV. For example, economic abuse, which serves to exert control over intimate partners by limiting an individual's control over their finances is associated with experiencing other forms of IPV, including psychological and physical IPV (Adams et al., 2008). Not only can economic IPV lead to psychological distress (Antai et al., 2014; Kutin et al., 2017), but may critically limit an individual's access to the necessary resources to leave an abusive relationship, possibly leading to prolonged IPV involvement. Further, given the prominence of electronic forms of communication in the 21<sup>st</sup> Century, future research should also examine the association between ACEs and electronically transmitted IPV. For example, Smith-Darden et al. (2017) found a significant association between ACEs and electronic dating aggression, including cyberstalking, online harassment, and coercive sexting among a sample of middle- and high-school students. However, an understanding of the association between ACEs and electronic IPV and its correlates is currently limited in adult samples, despite the fact that many adults are now meeting and engaging with potential partners via online dating applications and services (Hogan & Dutton, 2011).

## Conclusions

The results of the current study provide support for the notion that ACEs confer risk for IPV victimization and perpetration to a similar degree. The present meta-analysis clarified the mixed findings in existing research by providing a pooled effect size for the association between ACEs and IPV perpetration and victimization among published studies globally. The results strengthen our understanding of risk factors for IPV involvement, and suggest that moving forward, a trauma-informed approach to IPV screening, prevention, and intervention may be relevant factors to consider, given that individuals who are involved with IPV may be more likely to possess a history of ACEs exposure.

**Supplementary material.** The supplementary material for this article can be found at <https://doi.org/10.1017/S0954579423000196>

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