A Systematic Review of the Child Exposure to Domestic Violence Scale

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Abstract

Children's exposure to parental intimate partner violence (IPV) is recognised as an adverse childhood experience that impacts children's healthy development. Limitations in measurement have prevented a comprehensive assessment of children's exposure to parental IPV. The Child Exposure to Domestic Violence (CEDV) Scale was developed to address these limitations. The purpose of this systematic review was to synthesise and summarise the psychometric properties of this measure. A systematic search of domestic and international quantitative studies utilising the CEDV was conducted to assess the reliability and validity of the instrument. From the 264 studies identified, the final sample included thirteen studies. The CEDV was used in various countries and was translated into several languages. The internal consistency remained good when utilising the CEDV with diverse populations. The results indicated that the CEDV demonstrated content, convergent and discriminant validity. Inconsistencies were present regarding the association with internalising problems such as depression. Additional studies are needed to examine these discrepancies. Social workers should consider using the CEDV with children exposed to IPV to assess children's exposure and inform interventions. Implications for research include employing exploratory factor analysis to examine the factor structure of the measure when it is used with various populations.

Keywords: child exposure to domestic violence, intimate partner violence, psychometrics

Introduction

The Centers for Disease Control and Prevention (2016) recognises children's exposure to parental intimate partner violence (IPV) as an adverse

childhood experience that impacts their healthy development. Various studies have attempted to report the prevalence of children's exposure to parental IPV. The Second National Children's Exposure to Violence Survey of 4,500 youth reported that one in four children witnessed a parental assault in their lifetime (Finkelhor *et al.*, 2015). McDonald *et al.* (2006) estimate that 15.5 million children are exposed to parental IPV annually in the USA.

The term 'exposure' to IPV is used more commonly than the previous term 'witness'. Exposure is more inclusive and suggests that children may be aware of parental IPV without observing it directly. Scholars describe children's exposure to parental IPV as the 'multiple experiences of children living in homes where an adult is using violent behaviour in a pattern of coercion against an intimate partner' (Edleson *et al.*, 2007, p. 963). Holden (2003) created a taxonomy of exposure to parental IPV, which includes prenatal exposure, intervening during the violence, victimisation, participating in the violence, direct observation, overhearing the violence, observing the effects of violence, experiencing the aftermath, hearing about the incident and being oblivious to the violence.

A population-based surveillance study of 1,581 IPV incidents demonstrated that in 43 per cent ($n = 679$) of the cases, children were in the home at the time of the violence, and 95 per cent of these children had sensory exposure (Fusco and Fantuzzo, 2009). Amongst the children who had sensory exposure, 22 per cent heard it, 4 per cent saw it, more than 60 per cent heard and saw it and 3 per cent were injured in the incident. Children's involvement in the IPV incidents included being part of a precipitating event, calling for help directly or indirectly, and physical involvement. The largest percentage of children were involved physically (37 per cent). One-third of them were involved in precipitating events, and almost 30 per cent called for help.

Fusco and Fantuzzo (2009) examined differences based on gender, race and age. Girls were more likely to be involved in the violence as witnesses, although there were no differences in gender regarding being part of a precipitating event or physical involvement, but girls were significantly more likely (57 per cent) to call for help compared to boys (Fusco and Fantuzzo, 2009). There were no racial differences amongst the three types of involvement. The mean age of the children who intervened was seven years. Children under six years of age were more likely to be part of the precipitating event and physically involved, while children between the ages of 7 and 17years were more likely to call for help.

A well-developed body of knowledge demonstrates that exposure to parental IPV can result in short-term and long-term adverse outcomes. Systematic reviews and meta-analyses indicate that exposure to parental IPV can result in mental health and behavioural problems (Kitzmann *et al.*, 2003; Evans *et al.*, 2008; Fong *et al.*, 2017). Additionally, exposure

to IPV can impact children's physical health, development, cognition and academic achievement (Peek-Asa *et al.*, 2007; Artz *et al.*, 2014).

Despite these findings, there are variations in the prevalence and consequences of children exposed to parental IPV (Edleson *et al.*, 2008). Research indicates that not all children experience adverse outcomes related to parental IPV exposure (Lundy and Grossman, 2005; Artz *et al.*, 2014; McDonald *et al.*, 2006). Lundy and Grossman (2005) examined the mental health and service needs of children exposed to parental IPV within fifty IPV agencies. Their findings indicated that within a sample of over 40,000 children, two-thirds ($n = 1,784$) did not report any problems.

One potential reason for the variation in outcomes may result from the measurement of children's exposure to parental IPV. There are several methodological limitations regarding assessing children's exposure to parental IPV. A primary methodological concern is how the prevalence information is obtained. Historically, most studies relied on an adult informant's report of exposure as well as the assessment of the child's emotional, behaviour and academic difficulties (Edleson *et al.*, 2007). Frequently, studies adapt the adult conflict tactics scale to include 'how often has your child witnessed (saw/heard) each conflict tactic' (Edleson *et al.*, 2007). Moreover, parents' reports of children's exposure often differ from those of their children (Sternberg *et al.*, 2006).

Presently, few measures utilise children's self-report of exposure to parental IPV (Finkelhor *et al.*, 2005). Many of the existing measures examine the impact of exposure to violence but do not directly assess the child's individual experience with the violence that could potentially affect their reactions to it (Edleson *et al.*, 2007). , most of the measures of children's exposure to violence focus on a variety of types of exposure and often include only one item about their exposure to parental IPV (Edleson *et al.*, 2007). Given the nature and complexity of children's exposure to parental IPV, a comprehensive assessment of contextual factors is critical (Mohr and Tulman, 2000).

To address the lack of measures specific to children's experience of parental IPV, Edleson *et al.* (2008) developed the Child Exposure to Domestic Violence (CEDV) Scale. The CEDV is a child self-report measure consisting of forty-two items that are divided into three sections with six subscales. The subscales include (i) level of violence in the home, (ii) level of exposure to violence, (iii) exposure to community violence, (iv) level of the child's involvement in the violent events, (v) risk factors in the child's home life and (vi) other victimisations the child has experienced at home.

The first section of the CEDV targets the type of exposure to parental IPV that children may experience such as, 'Has your mom's partner ever hurt your mom's feelings by calling her names, swearing, yelling, threatening her, screaming at her, or things like that?' and 'How often has your mom's partner done something to hurt her body like hitting

her, punching her, kicking her, choking her, shoving her, pulling her hair, or things like that?'. The child rates the ten items on a three-point Likert-type scale ('Never, Sometimes, A lot'). The second part of this section asks the child to report how he or she knew the violence was occurring at home with five choices, including 'I saw the outcome (like someone was hurt, something was broken, or the police came)', 'I heard about it afterwards', 'I heard it while it was happening', 'I saw it from far away while it was happening' and 'I saw it and was near while it was happening'.

The second part of the questionnaire includes twenty-three questions using the same Likert-type scale and asks the child to identify how often he or she intervened in the violent events. Examples of these questions include 'When your mom's partner hurts your mom, how often have you hollered or yelled something at them from a different room than where the fighting was taking place?' and 'When your mom's partner hurts your mom, how often have you called someone else for help, like calling someone on the phone or going next door?'. This section also asks about other potential risk factors in the child's life, including parental substance abuse, maternal depression, bullying and community violence. The final section includes nine demographic questions, including gender, age, race, ethnicity, present living arrangements, family composition and a question about their favourite hobbies to end on a lighter note. The purpose of this systematic review is to synthesise and summarise psychometric properties of the CEDV scale.

Despite the development of the CEDV scale and its utilisation as a measure of a child's exposure to parental IPV, no comprehensive review has been conducted to assess the psychometric properties, reliability and validity of the measure. The aim of the current review is to systematically search, collect, summarise and synthesise the published scholarly research using the CEDV scale with samples of children to provide practice and research implications for future use of the CEDV scale.

Method

The current systematic review was conducted utilising the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati *et al.*, 2009). The search terms that were used included 'CEDV scale', 'child exposure to domestic violence', 'Child exposure to domestic violence scale', 'CEDV' AND 'Scale' and 'CEDV' OR 'child exposure to domestic violence' and 'scale'. The databases searched were Academic Search Complete, Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete, Criminal Justice Abstracts with Full Text, Education Resources Information Center (ERIC), Family Studies Abstracts, MEDLINE, Psych ARTICLES,

Psychology and Behaviour Sciences Collection, PsycINFO and Social Work Abstracts. Dissertations and Thesis Global was searched to obtain grey literature. A Google Scholar search was conducted to identify any additional studies not obtained in the previous search. Finally, a forward search from the seminal article by Edleson *et al.* (2008) was completed to uncover further studies that may have utilised the CEDV scale.

Inclusion criteria

The inclusion criteria for prospective studies were that the study was quantitative, participants were under 18, used the CEDV scale and published in English in a peer-reviewed journal. Regarding grey literature, doctoral dissertations were also eligible for inclusion. Reviews (meta-analysis, literature review and systematic reviews) were excluded. Additionally, retrospective studies were also excluded from the study.

Covidence, a web-based systematic review software facilitated the process of tracking studies from the initial title and abstract screen through the full-text reviews. Both authors conducted the title and abstract screening as well as reviewed all the full-text articles. When disagreements arose at each stage, the authors met to resolve the discrepancies. In total, the first and second authors met for approximately two hours to resolve the conflicts. Figure 1 displays the PRISMA diagram that delineates the process of study exclusion throughout the review process.

Data extraction

Data extraction was conducted by the first author after the final sample of studies was identified. Sample information for each study was recorded, specifically the sample size, the age of the participants, country, setting (community, IPV agency/shelter, child welfare, or a combination of settings), racial demographics and percent of the sample that was female. Additionally, the parts of the CEDV scale used, information regarding translation of the measure, reliability evidence and validity evidence were recorded. Validity evidence included significant and non-significant relationships between exposure to parental IPV and child outcomes.

Results

Our results initially yielded 264 studies to screen. The first author loaded these studies into the web-based software Covidence to facilitate the screening and review process. Covidence removed eighty-three duplicates. One hundred eighty-one titles and abstracts were screened. One hundred
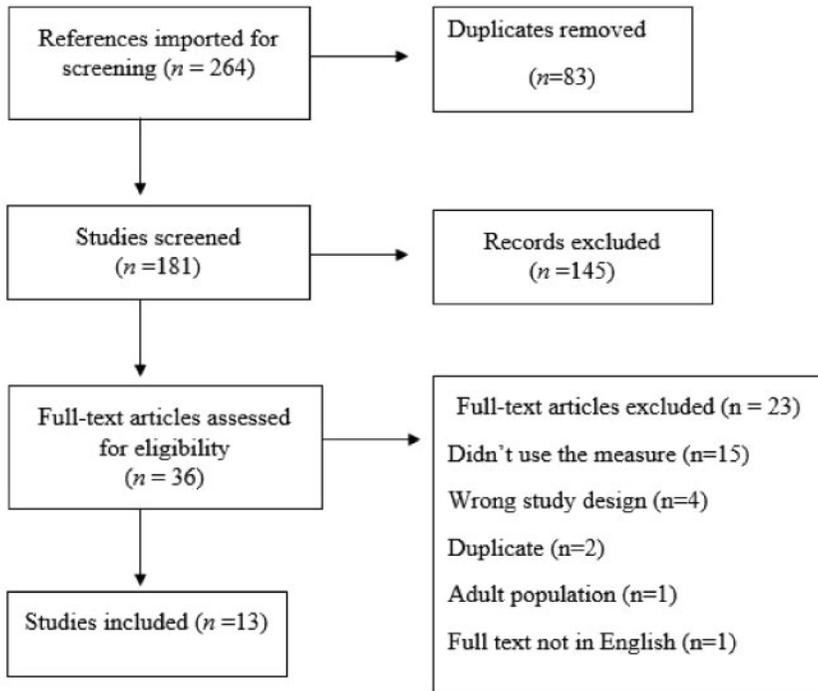
Figure 1: PRISMA diagram.

forty-five studies were eliminated at this level. Thirty-six full-text studies were assessed for eligibility. After reviewing the full-text articles, twenty-three studies were excluded. Thirteen studies were included in the review. Table 1 provides a summary of study characteristics.

Study and participant characteristics

Study design

Most of the studies (92 per cent) included in the review were cross-sectional. Several of the studies were identified as exploratory or descriptive (Anitha and Venus, 2016; Anderson, 2017; Jumma and erkez, 2017). However, one of the studies was an intervention study that used a repeated measures design without a comparison group (Grip *et al.*, 2013).

Sample size

The sample size ranged from twenty-nine (Anderson, 2017) to 1,212 children (Sajadi, *et al.*, 2014). The median sample size of this review was

Table 1 Study description

Study	Study Design	Sample
Anderson (2017)	Cross-sectional survey, exploratory	Convenience sample of twenty-nine white and biracial youth with PTSD symptoms who received mental health services at a rural victim-service provider in a midwestern state in the USA, 7–16 years of age, 48 per cent female, 10 per cent of colour
Anitha and Venus (2016)	Cross-sectional survey, descriptive	Purposive community sample of adolescents from Kerala and India. 85.8 per cent below poverty lines. All exposed to IPV, 10–18 years of age, 66.7 per cent female
Diez et al. (2018)	Cross-sectional survey	Youth who were involved with the Spanish child welfare system, 13–17 years of age, 52.2 per cent female, 88.4 per cent of Spanish origin
Grip et al. (2013) (Grip et al., 2014)	Cross-sectional survey (Cross-sectional intervention)	Youth from eight IPV agencies and five children and adolescent psychiatric and social service units, 9–13 years of age, 54 per cent female, 93.5 per cent born in Sweden
Harding et al. (2013)	Cross-sectional survey	Fifty-three mother–child dyads, community sample, study took place in psych research laboratory in the USA, 8–11 years of age, 60.4 per cent female, 55 per cent of colour
Jumma and erkez (2017)	Cross-sectional survey, descriptive	About 201 students in special education or vocational training programme in Iraqi-Kurdistan, 50.2 per cent female
Khatoon et al. (2014)	Cross-sectional survey	About 337 children from community and IPV shelter in Pakistan, 11–16 years of age, 40.65 per cent female
Katz et al. (2016)	Cross-sectional survey	Fifty-eight children of female survivors of IPV receiving services from an IPV shelter in the USA, 6–12 years of age, 52 per cent female, 48.6 per cent of colour
Idemudia and Makhubela (2011)	Cross-sectional survey	About 109 youth from a local university in South Africa, 15–20 years of age, 58.7 per cent female, 99 per cent of colour
Edleson et al. (2008)	Cross-sectional survey	Sixty-five children in the USA receiving services from an IPV agency, 44.6 per cent lived in shelter, 10–16 years of age, 44.61 per cent female, 66.3 per cent of colour
Sajadi et al. (2014)	Cross-sectional survey	About 1,212 high school students, nineteen educational districts in Iran, mean age 15.55 years, 49.3 per cent female
Shin (2013)	Cross-sectional survey	Ninety-nine children from IPV shelters and community in the USA, 10–16 years of age, 59.8 per cent female, 52.5 per cent of colour

ninety-seven children. The median was reported because one study was an outlier with 1,212 children (Sajadi *et al.*, 2014). The total sample from all the studies combined in the review was 2,546 children.

Participant characteristics

Table 2 provides a summary of the participant demographics. The mean age of the children in the studies was 12.70 (SD = 3.30). The youngest sample of children ranged from six to twelve years of age (Katz *et al.*, 2016). The oldest sample included children between the ages of fifteen

Table 2 Instrument characteristics and reliability evidence

Study	Part of CEDV used	Language	Alpha
Anderson (2017)	All	English	Not reported
Anitha and Venus (2016)	All	English with cultural adaptations	Not reported
Diez et al. (2018)	All	Spanish	Total alpha 0.87. Subscales ranged from 0.74 to 0.86. Other victimisation 0.34
Grip et al. (2013) (Grip et al., 2014)	About ten items asking about type and level and seven about involvement (ten items talking about type and level of violence)	Did not report	Type and level 0.79 and involvement 0.73
Harding et al. (2013)	First section of the CEDV but removed the question about violence towards animal; repeated for both male and female parents	English	0.79 for maternal IPV, 0.88 paternal IPV
Jumma and erkez (2017)	A total of thirty-three items from parts 1 and 2—child maltreatment portions; demographics related to maltreatment	Kurdish	0.74–0.76
Khatoon et al. (2014)	All	Urdu	0.86
Katz et al. (2016)	Twelve items	English	0.97
Idemudia and Makhubela (2011)	Parts 1 and 2 level of violence and involvement	English	Not reported
Edleson et al. (2008)	All	English	Total scale 0.86; subscales ranged from 0.59 to 0.85.
Sajadi et al. (2014)	All	Persian	Total scale 0.89; subscales ranged from 0.69 to 0.83
Shin (2013)	All	English	Total scale 0.85; subscales ranged from 0.62 to 0.88

and twenty years of age (Idemudia and Makhubela, 2011), which was included because some of the participants were under the age of eighteen years. The majority (38.5 per cent) of the studies were conducted in the USA. Amongst the studies that reported racial demographics (Edleson *et al.*, 2008; Idemudia and Makhubela, 2011; Harding *et al.*, 2013; Shin, 2013; Katz *et al.*, 2016; Anderson, 2017), 55.3 per cent were children of colour. Katz *et al.*, (2016) included the most diversity amongst participants. The sample included 46.7 per cent White, 30 per cent bi/multiracial, 21 per cent Hispanic children, 6.7 per cent Black, 9.3 per cent American Indian, 1.3 per cent Asian and 1.3 per cent Hawaiian. Fifty-three per cent of the children were female subjects.

Two studies were conducted in Sweden (Grip *et al.*, 2013; Grip *et al.*, 2014) using the same sample. Studies were also conducted in South Africa (Idemudia and Makhubela, 2011), India (Anitha and Venus,

2016), Iran (Sajadi *et al.*,2014), Iraqi-Kurdistan (Jumma and erkez, 2017), Pakistan (Khatoon *et al.*, 2014) and Spain (Diez *et al.*, 2018). The CEDV scale was translated into Spanish (Diez *et al.*, 2018), Kurdish (Jumma and erkez, 2017), Urdu (Khatoon *et al.*, 2014) and Persian (Sajadi *et al.*, 2014). The researchers who conducted the study in India reported making culturally specific adaptations.

Regarding the setting, the majority (41.7 per cent) of the studies were conducted in the community setting (Idemudia and Makhubela, 2011; Harding *et al.*, 2013; Sajadi *et al.*, 2014; Anitha and Venus, 2016; Jumma and erkez, 2017). Approximately 25 per cent of the children were sampled from an IPV agency or shelter (Edleson *et al.*, 2008; Katz *et al.*, 2016; Anderson, 2017). The remaining studies were sampled from both the community and IPV agencies or shelters (Grip *et al.*, 2013; Shin, 2013; Khatoon *et al.*, 2014). Only one study was conducted within a child welfare setting (Diez *et al.*, 2018).

All studies except for one (Diez *et al.*, 2018) reported the parts of the CEDV scale used. Half of the studies included all of the measure (Edleson *et al.*, 2008; Shin, 2013; Khatoon *et al.*, 2014; Sajadi *et al.*, 2014; Anitha and Venus, 2016; Anderson, 2017), and half of them reported using only part of it (Idemudia and Makhubela, 2011; Grip *et al.*, 2013; Harding *et al.*, 2013; Grip *et al.*, 2014; Katz *et al.*, 2016; Jumma and erkez, 2017).

Reliability

Table 2 displays the reliability evidence of the CEDV scale. Measures of internal consistency (Cronbach's) were available for ten of the thirteen studies. The majority of the studies reported good levels of internal consistency (Cronbach, 1951). The alphas for the total scale ranged from 0.79 (Grip *et al.*, 2014) to 0.97 (Katz *et al.*, 2016). Subscales ranged from 0.34 (Diez *et al.*, 2018) to 0.88 (Harding *et al.*, 2013; Shin, 2013). The studies that utilised translated measures reported subscales ranging widely from 0.34 to 0.86. The alpha of 0.34 was an outlier and was reported on the 'other victimization subscale' (Diez *et al.*, 2018). After removing the outlier, the alphas of the translated measures ranged from 0.74 (Diez *et al.*, 2018) to 0.89 (Sajadi *et al.*, 2014).

Two of the studies included test–retest reliability (Edleson *et al.*, 2008; Sajadi *et al.*, 2014). To establish test–retest reliability, Edleson *et al.* (2008) conducted paired *t*-tests, which were non-significant, indicating test–retest reliability for scores at time one and at time two a week later. The 'level of involvement' scale was statistically different. Additionally, Edleson *et al.* (2008) reported a significant moderate correlation between scores at time one and time two. Sajadi *et al.* (2014) also assessed reliability using the test–retest method. The Pearson's correlation

coefficients between the two administrations were 0.58–0.89, and for the total scale, it was 0.86. None of the tests demonstrated significant differences between time one and time two.

Validity

Table 3 provides information about the validity of the CEDV. Twelve of the thirteen studies included in this review provided information pertaining to validity. Content, concurrent, convergent, discriminant and factor validity were the most frequent types of validity reported in the studies. 'Content validity' pertains to whether items reflect a certain content domain (DeVellis, 2016). We defined 'concurrent validity' as significant correlations between the child's score on the CEDV scale and measures of known outcomes of children's exposure to parental IPV (Cronbach and Meehl, 1955). 'Convergent validity' occurs when there is 'evidence of similarity between measures of theoretically related constructs' (DeVellis, 2016, p. 100), whereas 'discriminant validity' occurs when there is an 'absence of correlation between the measures of unrelated constructs' (DeVellis, 2016, p. 100). Finally, 'factor validity' relates to the number and nature of latent variables that underlie a set of items. It also identifies how well items are performing (DeVellis, 2016).

Content validity

During the process of creating the CEDV, Edleson *et al.* (2008) assembled a panel of nine international experts who work with children exposed to parental IPV to review the measure. The experts were asked to examine each item and suggest whether to (i) keep the item 'as is', (ii) delete the item from the measure or (iii) revise the question. The experts were given the opportunity to provide specific feedback regarding changes that should be made and whether additional items should be included.

Concurrent validity

The CEDV scale significantly predicted depressive symptoms in children (Harding *et al.*, 2013). Children's scores on the CEDV scale were positively correlated with anxiety symptoms on the State-Trait Anxiety scale (Khatoon *et al.*, 2014). Females were at higher risk for anxiety compared to male subjects. Children exposed to parental IPV scored higher on the Behaviour Assessment System for Children Self-Report in the areas of maladjustment, social stress, depression and self-esteem (Diez *et al.*, 2018). Further, children exposed to parental IPV reported lower

Table 3 Evidence of validity

Study	Type of validity	CEDV scores significantly associated with
Anderson (2017)	Convergent	Total exposure was significantly correlated with fourteen protective strategies from the CPSI
Anitha and Venus (2016)	None reported	
Diez *et al.* (2018)	Concurrent	Children with exposure to intimate partner violence (EIPV) scored significantly higher on violence, involvement in violence and risk factors compared to children with no EIPV. Children with EIPV had significantly higher level of maladjustment, social stress, depression, self-esteem, higher internalising problems and lower adaptive skills
Grip *et al.* (2013)	Concurrent, discriminant	Higher CEDV pretest was significantly associated with positive change in psychological problems after intervention. No significant correlation between the CEDV and the SDQ, TSCC
Grip *et al.* (2014)	Concurrent	Children with EIPV experienced significantly lower quality of life, more health complaints, lower attachment than comparison group. EIPV predicted health complaints and negative emotionality
Harding *et al.* (2013)	Concurrent	CEDV predicted depressive symptoms
Jumma and erkez (2017)	Concurrent	Males significantly more likely to be physically maltreated, divorced parents more abusive; difference in birth order, child in the birth order of 5–8 and 9–11 abused significantly more
Khatoon *et al.* (2014)	Concurrent	Positive correlation with anxiety; females at greater risk for anxiety
Katz *et al.* (2016)	Did not report	
Idemudia and Makhubela (2011)	Concurrent	Significantly related to identity development; children exposed had lower overall identity development using Erikson's identity scale
Edleson *et al.* (2008)	Content, convergent	Consulted a panel of nine international experts in children's EIPV; significantly positively correlated with 'Things I've Seen and Heard' for violence at home and in the community
Sajadi *et al.* (2014)	Convergent	Significant positive correlation between CEDV and a questionnaire on exposure to physical aggression on the exposure to parental violence
Shin (2013)	Not reported	Female youth exposed to violence by fathers perceived for negative parenting behaviours of father; level of violence positively associated with perception on mothering; significantly negative effect on ambivalence towards mother and father; amongst males—IPV related to feelings about mother's parenting behaviour

self-reliance and less control over their life as well as higher internalising behaviours. Children not exposed to parental IPV demonstrated better personal adjustment and less emotional symptoms. Regarding outcomes related to children's exposure to parental IPV, higher CEDV scores were related to positive changes in psychological problems after participating in an intervention for children exposed to parental IPV (Grip *et al.*, 2013).

Additionally, a sample of children receiving services from an IPV agency or shelter reported lower quality of life, significantly more health complaints and increased negative emotionality. These children reported lower attachment to their fathers and mothers compared to a community sample of children in Sweden (Grip *et al.*, 2014). Moreover, youth exposed to violence by their fathers perceived more negative parenting behaviours of the father and ambivalence towards both parents (Shin, 2013). Idemudia and Makhubela (2011) found that in a sample of emerging adults, exposure to parental IPV was significantly related to lower identity development on Erikson's identity scale that measures the resolution of psychosocial stages.

Several studies indicated that the CEDV scale may potentially lack concurrent validity in some areas. For instance, Diez *et al.* (2018) did not find significant differences related to school problems amongst children exposed to parental IPV and those who were not exposed. Two studies found that children's exposure to parental IPV did not affect their emotional regulation (Harding *et al.*, 2013; Grip *et al.*, 2014). Additionally, scores on the CEDV scale did not predict internalising or externalising problems (Harding *et al.*, 2013) or mental health concerns such as depression symptoms (Katz *et al.*, 2016).

Anderson (2017) examined the correlations between the Children's Protective Strategies Index (CPSI) and the CEDV. The results demonstrated that fourteen strategies such as escaping, safety planning, intervening, protecting mother and siblings and hiding were related to the total score on the CEDV. Furthermore, Anderson (2017) examined the bivariate correlations between each question on the CEDV scale about the level of violence and each of the strategies on the CPSI, which revealed a moderate correlation.

Convergent validity

Convergent validity was discussed in two of the articles in the review. Edleson *et al.* (2008) established convergent validity by asking each child to complete the Things I've Seen and Heard questionnaire along with the CEDV scale and found correlations between violence in the home and violence in the community subscales (Edleson *et al.*, 2008). Sajadi *et al.* (2014) also tested concurrent validity by examining the correlation coefficients of scores on the CEDV scale and a questionnaire on exposure to physical aggression. Results indicated that subscales of exposure to parental IPV on each measure were positively correlated.

Discriminant validity

A study by Grip *et al.* (2013) examined the relationship between the CEDV scale and the Strengths and Difficulties Questionnaire (SDQ)

and the Trauma Symptoms Checklist for Children (TSCC). The TSCC included a post-traumatic stress scale, and the mean of the *t*-scores on the additional scales were used to operationalise psychological problems in general. The CEDV scale was not significantly related to any of the scales indicating discriminant validity. Moreover, the CEDV scale did not predict Post traumatic stress disorder (PTSD) symptoms that provides evidence that the CEDV scale does not measure PTSD (Katz *et al.*, 2016).

Factor validity

During development, Edleson *et al.* (2008) conducted a factor analysis to generate subscales empirically. However, they reported that conceptually relevant subscales did not emerge. Only one other study (Sajadi *et al.*, 2014) conducted an exploratory factor analysis (EFA) that resulted in seven subscales. However, they did not provide details about the analysis such as eigenvalues, factor loadings, factor structure or identify the seven subscales. Moreover, none of the studies conducted a confirmatory factor analysis.

Discussion

A substantial body of literature has demonstrated that children exposed to parental IPV may experience a host of adverse outcomes (e.g. Artz *et al.*, 2014; Kimball, 2016). The purpose of this study was to examine the psychometric properties of the CEDV scale across multiple studies in the literature. The findings indicate that the CEDV scale is reliable amongst diverse populations and that there is some evidence of concurrent validity between the CEDV scale and several outcomes related to exposure to parental IPV. However, there are some limitations to the CEDV scale regarding concurrent validity with other outcomes such as PTSD, academic achievement and emotional regulation. Additionally, the scale's factor validity has not been established.

Generally, the existing studies indicate that the CEDV is reliable when used with diverse populations of children in the USA and worldwide in various settings with total scale reliabilities ranging from 0.79 (Grip *et al.*, 2014) to 0.97 (Katz *et al.*, 2016). Only one study reported a low alpha of 0.34 for the 'other victimization' subscale. The low reliability score may have resulted from translation problems since the measure was translated into Spanish and had not previously been used with children in Spain (Diez *et al.*, 2018). The test–retest reliability evidence suggests that the measure is consistent over time.

Regarding validity, the evidence of concurrent validity in the studies is indicative that the measure is detecting relationships between the

exposure to parental IPV and several of the outcomes that have earlier been associated with children's exposure to parental IPV. Specifically, it is sensitive to children's anxiety and lowered self-esteem, as well as lower quality of life and physical health complaints. None of the studies examined children's externalising behaviours such as aggression, which is problematic because externalising behaviours is frequently related to parental IPV (Fong *et al.*, 2017). Since the CEDV did not detect school-related problems and emotional regulation, it is possible that the measure may not be sensitive to those outcomes, which is concerning, since children who are exposed to parental IPV often have difficulties with academic achievement and emotional regulation (Blackburn, 2009; Rigterink *et al.*, 2010; Kiesel *et al.*, 2016). It is possible that the lack of validity in this area may be that the small sample size prevented the detection of significant findings or perhaps these outcomes were not present in that sample. The studies included in this review suggest mixed conclusions regarding the CEDV scales ability to predict depression and other internalising problems. Potential reasons for the discrepancy could be that the studies were examining different internalising problems, considering the studies did not specify the exact internalising symptoms measured. Again, it is likely that studies that used the CEDV were consistently underpowered statistically, which limited the detection of significant associations between CEDV scores and salient correlates. Alternatively, some children exposed to parental IPV do not experience adverse outcomes, including PTSD (Lundy and Grossman, 2005; Artz *et al.*, 2014; McDonald *et al.*, 2006). This could be the reason that the CEDV scale was not significantly related to PTSD.

Regarding factor validity, Edleson *et al.* (2008) conducted an EFA when attempting to generate empirically based subscales but none emerged. This could be due to a small sample size. Only one study (Sajadi *et al.*, 2014) conducted an EFA, resulting in several subscales, but the study did not include details about the specific subscales.

Implications for research

The lack of concurrent validity in some areas such as externalising behaviours, school-related difficulties and PTSD indicate that additional research needs to be conducted using the CEDV scale with larger samples. This is especially the case because some of the evidence of validity or absence of it came from only one or two studies. Additional studies are needed to provide further evidence. Future research should also examine the effect of parental IPV on children's academic achievement and externalising behaviour problems using the CEDV. Additional studies are crucial to explore the CEDV's ability to predict mental health outcomes amongst children. Overall, studies employing the CEDV

should include larger samples to ensure power to detect a significant relationship if one is present.

Further, larger studies are needed so that researchers can assess factor validity. The small sample sizes prevented researchers from evaluating factor validity. EFA needs to be conducted to assess the factor structure of the measure when it is utilised with different samples worldwide. EFA should be conducted with a larger sample to examine whether subscales are present as well as to identify latent constructs. After more exploratory factor analyses are conducted, confirmatory factor analyses and structural equation modelling should be conducted to examine latent variables and the relationships between them.

Implications for policy and practice

Social work practitioners should consider utilising the CEDV scale when working with children exposed to parental IPV to assess the nature of the exposure and co-occurring risk factors. The CEDV scale is the only measure specifically designed for children's exposure to parental IPV that obtains information directly from the child. The CEDV may be a helpful tool for practitioners working with children exposed to IPV and their families, given that it provides a comprehensive assessment of exposure to parental IPV and co-occurring risk factors. Social workers can use the CEDV as a tool to assist in the selection of relevant interventions with children exposed to IPV. Considering the convergent validity findings, social workers should be sure to assess for anxiety, social stress, self-esteem, health and the relationships between family members since they were found to be correlated with the CEDV scale.

Limitations

This review has several limitations. First, only thirteen studies were included, and three of the studies did not report reliability measures. Although a variety of databases were searched, it is possible that some studies may have been missed because they were not indexed in the databases searched. Secondly, it is possible that this review is subject to publication bias such that studies with null findings may not have been published. In that same vein, although dissertations were included in the review, it is possible that other dissertations may have employed the CEDV scale but were not published.

Conclusion

This review provides preliminary evidence that the CEDV scale is both reliable and exhibits some evidence of validity amongst diverse

populations of children. The psychometric properties of the scale were retained with populations beyond the original sample, which is promising. However, considering the limitations related to factor and concurrent validity, future studies need to be conducted with larger samples to understand more about key correlates and latent variables.

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