Mediators and effect modifiers of the causal pathway between child exposure to domestic violence and internalising behaviours among children and adolescents: A systematic review of the literature

Introduction

Rationale

Exposure to domestic violence (DV) during childhood is a global public health concern. DV is defined as “Any incident of threatening behaviour, violence or abuse (psychological, physical, sexual, financial or emotional) between adults who are or have been intimate partners or family members, regardless of gender or sexuality.” (Home Office, 2013). Within this review, DV and intimate partner violence (IPV) are considered synonymous and they are used interchangeably to coincide with the terminology used within individual publications. Exposure to DV is regarded as a form of child maltreatment (Gilbert et al., 2009) and children exposed to DV experience similar rates of internalising and externalising problems as those directly abused (Moylan et al., 2010). In the UK and the USA, approximately 20% - 25% of children witness DV during childhood and adolescence (Finkelhor, Turner, Shattuck, & Hamby, 2015; Radford, 2011). The costs of child exposure to DV are significant and the support of these children have been estimated to cost UK taxpayers £1.4 billion in education, health care, residential and crime costs (Pro Bono Economics, 2018). In the USA, the lifetime economic burden estimated to be $70,000 per victim (Holmes, Richter, Votruba, Berg, & Bender, 2018).

Exposure to DV in childhood has been linked to psychosocial difficulties, physical and mental health problems among children and young people (Holt, Buckley, & Whelan, 2008; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003). A meta-analysis has shown significant direct associations between IPV exposure and children’s internalising, externalising, and trauma symptoms (Evans, Davies, & DiLillo, 2008), and researchers have started to explore
potential risk and protective factors to better understand how DV impacts on child health and well-being, to inform the development of preventative interventions.

A previous systematic review showed that child age, gender, callous–unemotional traits and cognitive appraisals were key moderators, and maternal mental health, and quality of parenting mediated the association between IPV exposure and externalising problems in children (Fong, Hawes, and Allen, 2017). Although there is likely to be overlap, externalising behaviours are considered to result in part from poor self-regulation whereas internalising behaviours are thought to occur from individuals over-regulating their thoughts and emotions in a maladaptive way (Cicchetti & Toth, 2014, Merrell, 2008). Internalising and externalising problems have been shown to have different sets of risk and protective factors (contextual and genetic factors) despite their comorbidity (Cotter, Wu, & Smokowski, 2016; Smokowski, Guo, Evans, Wu, Rose, Bacallao, & Cotter, 2017).

**Objective**

Studies exploring the causal pathway between child exposure to DV and internalising symptoms have identified factors that are modifiable through intervention (amenable to change), such as self-esteem, and those which are non-modifiable, or fixed, such as age, sex, maternal marital, education and socio-economic status. (e.g. Gagne & Melancon, 2013; Spilsbury et al., 2007). This review aimed to extend the evidence base described above by exploring (i) mediators - factors that explain the causal pathway through which DV is associated with internalising symptoms, and (ii) effect modifiers - factors that alter the strength of the association between DV and internalising symptoms, among children and adolescents aged 0-18 years within predominantly community samples.

We focussed on factors that were amenable to change, thus providing evidence for the components upon which interventions for children and young people exposed to DV could be targeted. An understanding of mediating factors will help to explain how exposure to DV
leads to internalising behaviours. For example, the stress caused by witnessing DV may lead to changes in a child’s ability to regulate their emotions and this emotion dysregulation may lead to internalising symptoms. Effect modifiers are factors that interact with the exposure (DV) so that the association is different under certain conditions of the effect modifier (Baron & Kenny, 1986). For example, if gender is a factor that moderates the association between exposure to DV and internalising behaviour symptoms, witnessing DV will be associated with internalising behaviours among males and females in a significantly different way.

Mediators and effect modifiers may increase or decrease the likelihood of children and young people experiencing internalising symptoms and therefore may be considered as risk (e.g. harsh parenting) or protective factors (e.g. social support). In line with the biopsychosocial model, these factors may be biological, behavioural, or social conditions which may be measured at an individual (e.g. self-esteem), family (e.g. familial relationships), or community level (e.g. cultural influences). The focus on internalising symptoms is important as such symptoms and disorders are often overlooked among children and young people (Merrell, 2008) meaning that many suffer through their school lives undetected through external observation unlike externalising behaviours (Forns, Abad, & Kirchner, 2014). Nevertheless, they are very common, often emerge in adolescence, and are associated with significant chronicity and mortality (e.g., suicidality; Korhonen, Luoma, Salmelin, et al. 2018; Piqueras, Soto-Sanz, Rodríguez-Marín, & García-Oliva, 2019).

**Method**

This systematic literature review was registered with the PROSPERO International Prospective Register of Systematic Reviews, registration number: CRD42019127012.
Information sources and search strategy

The electronic databases EMBASE, PsycINFO and Medline were searched for articles from the “second generation” of research in this area, published between 1\textsuperscript{st} January 1990 and 6\textsuperscript{th} November 2018. This was so as to exclude early research considered to be of poor quality with methodological limitations such as weak definitions and measurement of DV and reliance on shelter samples (Fantuzzo & Lindquist, 1989). The search strategy included words synonymous with “intimate partner violence”, “child or adolescent”, and “psychopathology” along with “risk or protective”, “mediat* or moderat*”, and “resilience”. The full search strategy can be found in Appendix A. The past three years (2015-2018) of the key three journals (Child Abuse and Neglect, Journal of Family Violence, & Journal of Family Psychology) were also hand searched and back-referencing of all included studies and identified review articles was applied.

Study eligibility criteria

Studies were limited to peer reviewed articles published in English and included if they were original, quantitative, longitudinal studies investigating potential mediators or effect modifiers of the relationship between child exposure to DV (from birth) and internalising symptoms in children and adolescents from nought to 18 years old within predominantly community samples. These mediators and effect modifiers should be amenable to change within interventions. Studies must have measured DV as defined by the World Health Organisation and must have used validated measure(s) to assess internalising symptoms (anxiety, depression, somatic complaints, and social withdrawal) to allow comparison across studies. Studies of child maltreatment, family violence, stressful life events, or adverse childhood experiences (ACEs) were included if data specific to DV exposure could be extracted. Studies were excluded if they did not measure internalising symptoms specifically or used a sample of children and/or adolescents from a non-typical population (e.g.,
children/adolescents with a chronic illness, intellectual impairment, autism spectrum disorder, or physical disability). Cross-sectional studies were excluded because the temporal relationships between variables cannot be disentangled, so they do not allow investigation of cause-and-effect relationships, and thus causality cannot be inferred.

**Study Records**

**Screening**

After duplication and application of search limits, one author (BC) screened all titles and abstracts of citations for potential studies for inclusion. A random 5% sample of titles were reviewed by the three other authors (SP, AK, AD; 180 each), together with a 30% sample of abstracts to reduce the likelihood of selection bias (Felson, 1992). Inter-rater agreement was very good (Fleiss, Levin, & Paik, 2013) at both stages (κ = .85 and κ = .86 respectively). Full texts of relevant citations were obtained and read to determine eligibility, and data detailing the study characteristics and outcomes were extracted by the lead author using an extraction form created by said author if the eligibility criteria were met. A 40% sample of full-texts were assessed for eligibility by the three co-authors and data were extracted if they were included. Again inter-rater agreement was very good (κ = .86). Any disagreements were discussed and resolved between all reviewers.

**Quality appraisal and analysis**

Studies were assessed for risk of bias by the lead author using the Newcastle-Ottawa Scale (NOS) for Cohort Studies (Wells et al., 2015), see Table 2 for study quality ratings.

Due to heterogeneity between the studies in methods and outcomes, which was assessed qualitatively, a narrative synthesis of results was conducted and presented by level of the factor: individual and familial.
Results

Study Characteristics and Overview

The search identified 7,772 articles after de-duplication and search limits applied. Following application of the eligibility criteria, the full texts of 121 articles were obtained and 12 longitudinal cohort studies were included in the review (see Appendix B).

All studies were conducted in the US. All studies focused on outcomes within the primary school age group (5-11 years) with four including adolescent outcomes (12-18 years). None of the studies investigated pre-schoolers outcomes (under 5 years). Three studies investigated individual factors and nine explored familial factors.

The average length of follow-up within the studies was 30 months and the sample sizes ranged from 35 to 6,228 children. Study characteristics including type of DV studied, and the measures of DV and internalising symptoms used are presented in Table 1.

Individual factors

Mediators

Emotional intelligence is the ability to recognise, process, and regulate feelings (Mayer & Salovey, 1997). Emotion regulation, an aspect of emotional intelligence, was thought to lie on the causal pathway between exposure to DV and internalising symptoms. One study (Katz, Hessler, & Annest, 2007) showed that emotion dysregulation mediated the association between DV exposure at five years and internalising symptoms at 11 years such that DV exposure led to emotional dysregulation and subsequent internalising symptoms. Katz, Hesler, and Annest (2007) also investigated emotional awareness and reported it to mediate the effect of DV exposure measured at age five on internalising problems at 11 years. This study showed that awareness of negative emotions had a negative association with
internalising problems, suggesting that emotional awareness acts as a buffer against internalising symptoms (Katz et al., 2007).

Peer relations
Camacho et al (2012) investigated the indirect effect of peer relation quality in the relationship between IPV and internalising symptoms in a longitudinal study of preadolescents and adolescents aged 10-18 years. The quality of peer relations was assessed by levels of peer support, prosocial behaviours, overt victimisation and relational victimisation (exposure to behaviours aimed at damaging relationships or social reputation). They reported that peer support received and prosocial behaviour did not act as a mediator on the pathway between child exposure to DV and internalising symptoms.

Effect Modifiers

Extracurricular activities
One included study investigated the effect of participating in extracurricular activities and reported that intensive participation in either extracurricular activities or afterschool programs, but not moderate participation, has been reported to modify the impact of DV exposure on internalising symptoms among adolescents suggesting that it may act as a protective factor within this developmental stage (Gardner, Browning, & Brooks-Gunn, 2012).

Relational Victimisation
Camacho et al., (2012) reported that relational victimisation modifies the effect of DV on children’s internalising symptoms such that those who experience high levels of relational victimisation as well as exposure to DV are at increased risk of internalising symptoms.
compared to those who have been exposed to DV but have experienced low levels of relational victimisation.

**Familial Factors**

**Mediators**

**Parenting skills**

Parenting skills are likely to be diminished in violent families and this in turn is likely to impact on children’s internalising symptoms. The “spill-over” hypothesis, developed by Easterbrooks and Emde, (1988), proposes that “the emotions, affect, and mood generated in the marital realm transfers to the parent-child relationship (Krishnakumar & Buehler, 2000, p. 26).” Thus, hostility within the parental relationship is predicted to reduce parent's abilities to provide warm/responsive parenting as well as increased hostile and harsh parenting. Three cohort studies investigated the role of parenting skills on the causal pathway between child exposure to DV and internalising symptoms (Gewirtz et al., 2011; Huang et al., 2010; Rea & Rossman, 2005).

In a longitudinal study of 905 young children, Huang et al. (2010) found no evidence of a pathway between DV at one year of age, negative parenting (unresponsiveness, harshness, and poor communication skills) at year three, and internalising symptoms at year five. However, spanking in particular was found to mediate the pathway between DV and internalising symptoms among the children. Another study replicated these findings using the same longitudinal dataset (Yoo & Huangm 2013).

Rea and Rossman (2005) conducted a cohort study with children aged 7-12 years old and their mothers, the majority of whom had been exposed to IPV and reported that authoritarian parenting, and in particular verbal hostility, increased the risk of internalising symptoms over time, after controlling for the effects of initial psychological functioning, life adversity, and exposure to IPV. This suggests that negative parenting acts as a mediator for primary school
age children but not among preschool age children. No study included a sample of adolescents therefore the impact of parenting practices on internalising symptoms during adolescence following exposure to DV is unknown.

*Maternal mental health*

Three cohort studies that investigated the role of maternal mental ill health on psychological adjustment were included (Gewirtz et al., 2011; Huang et al., 2010; Yoo & Huang, 2013). Overall, evidence suggested that poor maternal mental health does not lie on the pathway between DV exposure and internalising symptoms, however these studies were conducted with young children under 6 years old and it was unclear whether maternal mental health may have a greater impact among older children and adolescents.

Gewirtz et al. (2011) reported that maternal distress, defined as any current psychopathology or post-traumatic stress symptoms, was only positively associated with depression symptoms in children, among the range of internalising symptoms. In addition, maternal distress did not significantly impact changes in internalising symptoms over time, nor did it mediate the association between parenting skills and internalising symptoms. A larger study with a sample of 905 young children also found that, although DV at year one was associated with maternal mental health problems at year three, there was no pathway between DV at year one, maternal depression at year three, and children’s internalising behaviour problems at year five (Huang et al., 2010). Similarly, Yoo and Huang (2013) reported that, among preschool children, maternal anxiety and depression did not mediate the association between exposure to DV at year one on internalising problems at year five.
**Parenting stress**

Evidence for the role of parenting stress on the causal pathway between DV exposure and internalising symptoms among children and adolescents was mixed. Renner and Boel-Studt (2013) conducted a cohort study with approximately 3-years follow-up and found that parenting stress (stress caused by fulfilling the parenting role) fully mediated the association between exposure to psychological IPV and internalising behaviours among 6-12-year olds, but no such pathway was found among adolescents (Renner & Boel-Studt, 2013). Moreover, in this study no direct or indirect pathways were found between physical IPV and internalising behaviours in either age group. Bair-Merritt (2016) reported that parenting stress did not mediate the significant association between IPV and internalising symptoms among 6-9-year olds. More research is needed to understand the conditions under which parenting stress accounts for significant variance in children’s internalising symptoms following DV exposure. It may be that parenting stress is associated with internalising symptoms through additional mediational pathways such as via parenting skills.

**Family functioning**

Evidence to support family functioning as protective against developing internalising symptoms is mixed. Owen, Thompson, Shaffer, Jackson, and Kaslow (2009) found that family cohesion may be a protective factor in school age children. However, neither maternal reports of family cohesion or family adaptability nor child reports of family adaptability mediated the relationship of exposure to DV and children’s internalising symptoms (Owen et al., 2009). Owen et al. (2009) also found weak evidence for a mediating role of family relatedness, defined as emotional quality and proximity seeking to primary attachment figures. The effect of DV on internalising symptoms was found to be mediated through children’s perceptions of the emotional quality of family relationships, however, no such
mediating pathway was found for maternal reports of emotional quality or child reports of proximity (Owen et al., 2009).

It may be that family functioning is a more powerful mediator of the link between maternal IPV and children’s internalising symptoms in European American children rather than African American families (Nievar & Luster, 2006), yet more research is needed to establish whether this is true.

Effect modifiers

Positive Parenting

Studies have explored the positive impact of effective parenting. Gewirtz et al. (2011)’s small (N=35), short-term longitudinal study following recent exposure to IPV, found that effective parenting modified the effect of IPV exposure on children’s internalising symptoms such that the behaviours decreased over time among those whose mothers demonstrated positive parenting skills, whereas internalising symptoms remained stable over time among those with poorer parenting skills.

Family Social Support

Evidence suggesting family social support to be protective against developing internalising symptoms following childhood exposure to DV is mixed. In a longitudinal study with a sample of 100 school-age children, it was found that changes in family social support moderated the effect of changes in witnessing DV on depression symptoms over time. However, a three-way interaction showed that the impact of social support depended on gender. Reductions in witnessing IPV over time were associated with fewer depression symptoms over time except among boys who reported low levels of family social support initially (Angie C. Kennedy, Bybee, Sullivan, & Greeson, 2010). This finding implies that social support is a protective factor against depression following exposure to IPV,
particularly among boys. When considering anxiety symptoms as the outcome, Kennedy and colleagues (2009) found, using the same sample, method, and procedure, that family social support did not moderate the association between IPV exposure and anxiety among children.

A summary of the findings above is presented in Figure 1 along with a number of hypothesised associations between factors which require further exploration as the current evidence base is inconclusive.

Risk of bias in individual studies
Most studies were of reasonable quality given their observational nature and the sensitive topic; however, all introduced some risk of bias for several reasons. A full evaluation of the risk of bias using the NOS can be found in Table 2.

Most studies adjusted for several important confounders. The lack of consistency among measures of DV made it difficult to compare results and potentially introduced further bias. Few studies included emotional abuse, those that did sometimes omitted physical abuse, and none mentioned measuring all forms of DV described above, so the full extent of the abuse was not obtained. Most studies only investigated DV events within the past year so the impact of past exposure, cumulative, and chronic exposure over time were not explored. Furthermore, a few studies included child reports of DV exposure, yet the majority relied on parental reports which may not truly reflect childhood exposure and may have been affected by social desirability.

All the included studies introduced risk of bias by using self-report measures to assess internalising symptoms rather than data-linkage to medical/education records or blind assessment of behaviour by clinicians. Most of the studies also relied on maternal reports of their child or children’s internalising symptoms rather than child self-reports introducing potential response bias as mothers may not be aware of their child’s internal suffering resulting in under-estimates or they may overestimate their children’s psychological distress.
if they are stressed and distressed themselves. Studies which included both child and parental reports demonstrated that the two do not always correlate and therefore results may not be interpreted confidently. In this context, however, using record linkage to identify internalising symptoms could also introduce bias as only those with severe, clinical levels of internalising symptoms would be recorded, unlike self-report measures.

**Discussion**

This review has consolidated evidence for mediators and effect modifiers on the causal pathway between DV exposure and internalising symptoms in children and adolescents that are modifiable. One individual level mediator was identified, namely emotional intelligence and two effect modifiers were identified: relational victimisation and participation in extracurricular activities. Familial mediators included maladaptive parenting and parenting stress, while effect modifiers included positive parenting (maternal warmth and availability) and family social support. No factors were identified at a community level.

This review’s findings partially support another recent systematic review which synthesised evidence for factors promoting emotional-behavioural resilience in children following exposure to IPV (Fogarty, Wood, Giallo, Kaufman, & Hansen, 2019). (Fogarty et al., 2019) Emotional and behavioural outcomes were defined as internalising and externalising difficulties and the authors identified protective factors against such problems only, not risk factors. Our review identified low social support, emotion dysregulation, negative parenting practices (e.g., spanking) and parenting stress to increase the risk of internalising symptoms following exposure to DV. Potential factors promoting resilience identified by Fogarty et al. (2019) included emotion coaching, authoritative (warm and responsive) parenting, and easy child temperament. Emotion coaching may be an effect modifier that improves children’s
emotional intelligence, identified within this review to be a mediator on the causal pathway between DV exposure and internalising symptoms. Positive maternal mental health was also reported by Fogarty et al. (2019) to predict emotional-behavioural resilience among children exposed to IPV, however this review has found that, when only longitudinal studies are included, poor mental health does not lie on the pathway between DV exposure and internalising symptoms, however this has only been reported among young children (Gewirtz et al., 2011; Huang et al., 2010; Yoo & Huang, 2013). However, the studies identified in this review did not include children over the age of five years, so it may be that maternal mental health has a greater impact when children are older and have a greater understanding of the situation.

The results from this review have highlighted that there is little evidence to date for the factors that impact the association between exposure to DV and internalising symptoms in adolescence. Increasing age has been found to be protective (Spilsbury et al., 2007), implying recent DV exposure has a smaller effect on internalising symptoms in adolescents. However, other studies have shown that internalising symptoms are still pronounced in adolescence following IPV exposure and argue that adolescence may be a sensitive period for the impact of IPV exposure on internalising symptoms, given the already increased vulnerability to psychopathology due to developmental, behavioural, hormonal, and neurological changes (Menon, Cohen, Shorey, & Temple, 2018; Vu, Jouriles, McDonald, & Rosenfield, 2016). A practical limitation may be that cohort studies investigating life course effects are expensive, yet longitudinal data does exist and allows exploration of the effects of time between the exposure (DV) and the outcome as well as exposure duration.

**Implications for interventions**

This review has identified potential modifiable factors which may be important to target in interventions for children, young people, and their families who have suffered from DV. For
example, interventions targeting children’s emotion regulation and emotion awareness could help prevent children who have been exposed to DV developing internalising behaviours. Family interventions may benefit from focussing on positive parenting such as using positive reinforcement and calm limit-setting rather than corporal punishment such as spanking, so that spanking is avoided as this is likely to be a further risk factor for children developing internalising symptoms (Yoo & Huangm 2013). Furthermore, interventions aiming to foster children’s feelings of family cohesion and positive sibling relationships may help buffer children from experiencing negative psychological outcomes following DV exposure. Furthermore, as intensive participation in extracurricular activities was found to moderate the link between DV and internalising behaviours (Gardner et al., 2011), helping support children to attend groups and classes may help prevent children and adolescents exposed to DV from developing poorer psychological adjustment. It is important to note that as intervention studies were not included in this review and therefore such interventions may already exist, however this review can provide scientific evidence for such programmes. Most studies included in this review have tended to adopt the traditional risk-outcome approach, focussing on identifying and reducing risks, and operationalising protection as absence of risk (e.g. poor maternal mental health is a risk and absence of psychological disorders is protective). In contrast, a strength-oriented approach is preventative and considers protective factors within an individual, family, and community that modify the effects of negative events, enabling children and young people to be resilient and “bounce back” in the face of adversity (Luthar, Cicchetti, & Becker, 2000; Rutter, 2000). These factors include having at least one positive relationship with an adult and having an internal locus of control over events (Luthar et al., 2000). Focussing on protective factors helps children, adolescents, and families build resilience through developing valuable skills,
knowledge, and relationships that help counteract risk exposures and contribute to positive outcomes (Masten, 2001).

### Limitations

The main limitation of this review is that it provides breadth but not depth as studies have explored a number of potential mediators and effect modifiers, but the majority have only been studied once or twice. Therefore, the conclusions that can be drawn about each factor and its role in the relationship between DV and internalising symptoms among children and adolescents are limited. Additionally, in trying to understand the association between DV exposure and internalising symptoms, studies have investigated one exposure and outcome, failing to consider the complexity of families who have experienced DV. Furthermore, the tendency to focus on a single mediator or effect modifier within each study prevents the exploration of relationships between factors and the identification of which factors are most important to focus upon within interventions.

All the included studies bar one were conducted in the United States of America and different factors may be prominent risk factors or key to protecting children and adolescents exposed to DV against internalising symptoms in other countries and cultures. Additionally, cultural views and responses towards DV may influence the complex association between DV and child and adolescent internalising symptoms. Thus, it is not clear whether the findings identified in this review are generalisable to other ethnic and cultural groups. In addition, countries differ in their social care interventions and the state may intervene at different points, which is likely to affect the duration and severity of DV children and adolescents are exposed to across countries, reducing generalisability.
Many of the studies in this review included wide age ranges but did not explore differences across developmental or educational stages that complicated interpretation of findings given that risk and protective factors may vary across these parameters. This could be addressed by cohort studies taking a life course approach to the impact of early and/or prolonged exposure to DV and other adversities.

Studies tended to only include male perpetrated violence, or did not distinguish between male and female perpetrated abuse within analyses, and none considered same-sex couple violence. This may confound the effects of child gender and it is unknown whether factors such as maternal mental health (or paternal mental health), along with other factors, would have the same impact if the DV was female perpetrated.

The exclusion of intervention studies limited this review as they provide additional, compelling evidence for mediators and effect modifiers within natural settings. Further research is advised to systematically search intervention studies that have investigated the factors identified within this study to gather further evidence before future interventions are developed.

Finally, this review is likely to be affected by publication bias with an emphasis on publication of significant results rather than null results and may be affected by the duplicate publication bias as multiple studies with a significant result are more likely to published than a single study indicating a non-significant result yet both contribute to the overall effect of a factor within a systematic review.

**Directions for future research**

Although mediators and effect modifiers of the causal pathway between DV and internalising symptoms among children and adolescents have been identified, more research is needed to establish the extent of indirect pathways, particularly research exploring protective factors.
More longitudinal studies are needed to determine causal relations between potential mediating factors, to enable inferences to be drawn about causality, and to investigate of the impact of chronic DV exposure over time or prior exposure rather than just current or recent exposure. Such studies would enable understanding as to whether certain risk and protective factors are important at different stages through childhood and adolescence. For instance, it may be that maternal factors are more influential during childhood however, when children enter adolescence and gain greater freedom, social factors such as peer support or bullying may be more prominent. In particular, more research is needed to determine the effect of maternal mental health on the pathway between DV and internalising symptoms among school age children and adolescents as currently this is unclear.

Other ACEs should be considered when investigating internalising symptoms. Although DV exposure has been shown to be a strong risk factor for poor psychological adjustment, other influential traumatic experiences are likely to co-occur (Appel & Holden, 1998). Studies have shown the accumulation of ACEs to be associated with greater risk of psychopathology both in childhood (Flouri & Kallis, 2007) and across the lifespan (Chang, Jiang, Mkandarwire, & Shen, 2019; Felitti et al., 1998). Investigating multiple risk and protective factors consecutively rather than in isolation would enable researchers and clinicians to identify the most important factors for services and policies to target.

Another neglected line of research is the role of paternal characteristics. Understandably, the paucity of research in this area is likely due to issues of safety and a duty of care to the families participating in research. However, paternal parenting skills may be just as important as maternal parenting and it may be that factors such as a positive mother-child relationship are only protective if the mother is the victim of DV rather than the perpetrator.
While much of the research surrounding childhood exposure to DV has focused on violence perpetrated by males (Wolak & Finkelhor, 1998), it is important to recognise that children may also be exposed to DV in which their mother is the perpetrator or bidirectional acts of violence between caregivers occurs (Holmes, Yoon, & Berg, 2017). Outcomes and related risk or protective factors may be different when the mother is the perpetrator or violence is bidirectional. Furthermore, they may be different across diverse family profiles, including same-sex couples and kinship caregivers (e.g., grandparents), therefore it is important that such families are included within DV studies.

**Conclusion**

This systematic literature review has provided an overview of the current evidence for the causal pathway between exposure to DV and internalising symptoms among children and adolescents. This evidence is valuable for services working with children and young people who are experiencing internalising problems following exposure to DV, and their families. Key methodological issues have been highlighted which may help improve future research in the field. Parenting stress and parenting skills appear to play critical roles in the indirect pathway between DV and internalising symptoms, at all three developmental stages. This demonstrates the need for mothers who have experienced DV to have access to a parenting support to maintain both their own and their children’s mental wellbeing. Overall, this knowledge is vital for guiding clinical and community interventions for children and young people exposed to DV, and their families in order to prevent children experiencing psychopathology.
References


Kennedy, A. C., Bybee, D., Sullivan, C. M., & Greeson, M. (2010). The impact of family and community violence on children's depression trajectories: Examining the interactions of
violence exposure, family social support, and gender. *Journal of Family Psychology*, 24(2), 197-207. doi:http://dx.doi.org/10.1037/a0018787


Table 1: Characteristics of included longitudinal studies

<table>
<thead>
<tr>
<th>Authors, Year</th>
<th>Study Description (age range (yrs), gender; follow-up time)</th>
<th>Sample type</th>
<th>N</th>
<th>Type of violence exposure and perpetrator</th>
<th>Measure of DV and informant</th>
<th>Factor(s) of interest</th>
<th>Measure of mediation of effect modification</th>
<th>Measure of child internalising symptoms and informant</th>
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<tbody>
<tr>
<td>Bair-Merritt, et al 2015</td>
<td>6-9; 51% male; 2 years</td>
<td>Community</td>
<td>270 mother-child dyads</td>
<td>Verbal, physical, sexual abuse, and injury; maternal and partner</td>
<td>CTS-21</td>
<td>Maternal mental health (depression) and parenting stress</td>
<td>Mediation</td>
<td>CBCL²</td>
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<td>Camacho, et al 2012</td>
<td>10-18; 44% male; 2 years</td>
<td>Community</td>
<td>129 mother-adolescent dyads</td>
<td>Physical abuse and injury; maternal or partner</td>
<td>CTS³</td>
<td>Peer relations</td>
<td>Effect modification</td>
<td>CBCL² internalising subscale</td>
</tr>
<tr>
<td>Gardner, et al 2012</td>
<td>9-17; 50% male; 2 years</td>
<td>Community</td>
<td>6,228 children and adolescents</td>
<td>Physical abuse; maternal or partner</td>
<td>CTS³ - physical aggression subscale</td>
<td>Community activity participation</td>
<td>Effect modification</td>
<td>YSR³</td>
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<td>Gewirtz et al., 2011</td>
<td>6-12; 50% male; 14 weeks</td>
<td>DV shelter and DV court</td>
<td>35 mother-child dyads</td>
<td>Physical abuse; male</td>
<td>Shelter and court reports of DV</td>
<td>Parenting skills and maternal distress</td>
<td>Mediation</td>
<td>CDI-S⁵, Levonn⁶ and adapted CFS⁷</td>
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<td>Huang, et al 2010</td>
<td>1-5; 50% male; 5 years</td>
<td>Community</td>
<td>1234 mother-child dyads</td>
<td>Physical violence, emotional control, sexual abuse;</td>
<td>Physica l, emotional and sexual abuse was reported</td>
<td>Maternal mental health, and parenting</td>
<td>Mediation</td>
<td>CBCL²</td>
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<td>Study</td>
<td>Participants</td>
<td>Families</td>
<td>Partner Violence</td>
<td>CTS3</td>
<td>Emotion Competence</td>
<td>Mediation</td>
<td>Depression Scale</td>
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<td>Katz, et al., 2007</td>
<td>4-11; 62% male; 4 years</td>
<td>Community</td>
<td>130 families</td>
<td>Physical violence; maternal and partner</td>
<td>CTS3</td>
<td>Emotion Competence</td>
<td>CBCL2 - depression scale</td>
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<td>Kennedy, et al., 2009</td>
<td>8-14; 61% male; 2 years</td>
<td>Community</td>
<td>100 mother-child dyads</td>
<td>Physical and emotional abuse; partner</td>
<td>4-item Child Report of Witnessing IPV Scale8</td>
<td>Family Social Support</td>
<td>Effect Modification</td>
<td></td>
</tr>
<tr>
<td>Kennedy, et al., 2010</td>
<td>8-14; 61% male; 2 years</td>
<td>Community</td>
<td>100 mother-child dyads</td>
<td>Physical and emotional abuse; partner</td>
<td>4-item Child Report of Witnessing IPV Scale8</td>
<td>Family Social Support</td>
<td>Effect Modification</td>
<td></td>
</tr>
<tr>
<td>Rea et al., 2005</td>
<td>7-12; 45% male; 12 months</td>
<td>DV shelters and community</td>
<td>191 mother-child dyads</td>
<td>Physical and emotional abuse; maternal and partner</td>
<td>CTS3 - physical and verbal aggression subscales</td>
<td>Parenting</td>
<td>CBCL2</td>
<td></td>
</tr>
<tr>
<td>Rennert et al., 2013</td>
<td>6-17; 49% male; 2 years</td>
<td>1,653 children</td>
<td>1,653 mother-child dyads</td>
<td>Physical and emotional abuse; partner</td>
<td>CTS3 - physical abuse questions and questions from WEB11</td>
<td>Parenting Stress</td>
<td>CBCL2</td>
<td></td>
</tr>
<tr>
<td>Yoo et al., 2012</td>
<td>5; 52% male; 5 years</td>
<td>Community</td>
<td>1,234 mother-child dyads</td>
<td>Physical, emotional, and sexual abuse; partner</td>
<td>Physical, emotional and sexual abuse reported by mother</td>
<td>Maternal mental health, parenting, poverty, marital status</td>
<td>CBCL2</td>
<td></td>
</tr>
<tr>
<td>Yoo et al., 2013</td>
<td>5; 52% male; 5 years</td>
<td>Community</td>
<td>1,234 mother-child dyads</td>
<td>Physical, emotional, and sexual abuse; partner</td>
<td>Physical, emotional and sexual abuse reported by mothers</td>
<td>Maternal mental health, parenting</td>
<td>Mediation</td>
<td>CBCL²</td>
</tr>
</tbody>
</table>

¹CTS-2: Revised Conflict Tactics Scale; Straus, Hamby, Boney-McCoy, & Sugarman, 1996; parent-reported
²CBCL: Child Behaviour Checklist; Achenbach & Edelbrook, 1981; parent-reported
³CTS: Conflict-Tactics Scale; Straus, 1979; parent-reported
⁴YSR: Youth Self-Report; Achenbach & Rescorla, 2001; child-reported
⁵RCMAS: Revised Measure of Children's Manifest Anxiety Scale; Reynolds and Richmond, 1983; child-reported
⁶Levonn: Richters, Martinez, & Valla, 1990; child-reported
⁷CFS: Children’s Fears Survey; Ramirez, Masten, & Miliotis, 1994; child-reported
⁸Child Report of Witnessing IPV Scale; Allen, Wolf, Bybee, & Sullivan, 2003; child-reported
⁹RCMAS: Revised Children’s Manifest Anxiety Scale; Reynolds & Paget, 1983; child-reported
¹⁰CDI: Child Depression Inventory;
¹¹WEB: Women’s Experience of Battering Scale; Smith, Smith, & Earp, 1999; mother-reported
¹²SRSS: Social Skills Rating System; Gresham & Elliot, 1999; parent-reported
### Table 2: Newcastle-Ottawa Scale Scores for included Cohort Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Selection</th>
<th>Comparability</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bair-Merritt, 2015</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Camacho, 2012</td>
<td>*</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Gardner, 2012</td>
<td>**</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>Gewirtz, 2011</td>
<td>***</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Huang, 2010</td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>Katz, 2007</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Kennedy, 2009</td>
<td>***</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Kennedy, 2010</td>
<td>***</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Rea, 2005</td>
<td>**</td>
<td>**</td>
<td>*</td>
</tr>
<tr>
<td>Renner, 2013</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Yoo, 2012</td>
<td>*</td>
<td>**</td>
<td>*</td>
</tr>
<tr>
<td>Yoo, 2013</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>
## Appendix A

Search Strategy (Ovid – EMBASE, Medline, and PsycINFO)

<table>
<thead>
<tr>
<th>#</th>
<th>Searches</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>partner violence/ or partner violence.mp. or domestic violence/ or domestic violence.mp. or battered woman/ or battered wom*.mp. or family violence/ or family abuse.mp. or family violence.mp.</td>
<td>67,519</td>
</tr>
<tr>
<td>2</td>
<td>(intimate partner violence or intimate partner abuse).mp. or partner violence/ or interparent* violence.mp. or interparent* abuse.mp.</td>
<td>27,382</td>
</tr>
<tr>
<td>3</td>
<td>1 or 2</td>
<td>67,810</td>
</tr>
<tr>
<td>4</td>
<td>Adolescen*.mp. or adolescence/ or teen*</td>
<td>3,852,109</td>
</tr>
<tr>
<td>5</td>
<td>child/ or child* or infant or offspring</td>
<td>6,616,067</td>
</tr>
<tr>
<td>6</td>
<td>4 or 5</td>
<td>8,464,058</td>
</tr>
<tr>
<td>7</td>
<td>3 and 6</td>
<td>31,207</td>
</tr>
<tr>
<td>8</td>
<td>(mechanism* or pathway* or mediat* or moderat* or associat* or cause or risk or protective or resilience or correlate* or relat* or link* or indirect).ti,ab.</td>
<td>29,280,290</td>
</tr>
<tr>
<td>9</td>
<td>7 and 8</td>
<td>23,410</td>
</tr>
<tr>
<td>10</td>
<td>(internali* or psychopathology or social or emotional or mental or psycho-social or developmental or adjustment or behav* or depression or anxiety or somatic or withdrawal or health).mp.</td>
<td>14,587,443</td>
</tr>
<tr>
<td>11</td>
<td>9 and 10</td>
<td>20,458</td>
</tr>
<tr>
<td>12</td>
<td>limit 11 to English language</td>
<td>19,469</td>
</tr>
<tr>
<td>13</td>
<td>limit 12 to yr = “1990 – Current”</td>
<td>18,988</td>
</tr>
</tbody>
</table>
Appendix B

PRISMA Flow Diagram of Included and Excluded Studies

Records identified through database searching (n = 18,988)

Additional records identified through backreferencing and journal hand searches (n = 22)

Records after duplicates removed and search limits applied (n = 7,772)

Records excluded based on titles (n = 7,345)

Abstracts excluded (n = 352)

Full-text articles excluded, (n = 108)
10 did no measure impact of factors
14 did not assess mediation or moderation
21 did not measure exposure to DV specifically
28 did not measure internalising behaviours specifically
25 were cross-sectional studies
3 had a maximum participant age over 18 years
2 did not use a validated tool to measure outcome
2 did not measure modifiable factors
1 intervention study
2 were review articles

Studies included in quantitative synthesis (n = 12)

Full-text articles assessed for eligibility (n = 120)

Records screened (n = 470)