

**The Effects of Witnessing Domestic Abuse during one's Childhood, and Resulting
PTSD, on one's Behaviour: A Systematic Review**

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Abstract

Domestic abuse, also known as intimate partner violence (IPV), is a silent pandemic that is infiltrating the homes of millions of people worldwide. With this rising issue, the silent, forgotten victims of this abuse are often the children who grow up witnessing this violence. These child witnesses often suffer from a range of physical and psychological problems as a result. For example, 16% of child witnesses suffer from posttraumatic stress disorder (PTSD) as a result of witnessing domestic abuse. This can go on to have lifelong issues for the witness and can affect their behaviour as a result. Through means of a systematic review of the available literature, this paper explores whether or not witnessing domestic abuse, and resulting PTSD, negatively affects one's behaviour, and if so, how and to what extent. This systematic review resulted in six studies illustrating the correlation between witnessing domestic abuse, experiencing PTSD symptoms, and experiencing a number of behavioural issues, such as aggression, violence, delinquency and criminal behaviour, substance abuse, and revictimization. The evidence from the literature also shows that different age groups exhibit different behavioural issues, for instance, children exhibit aggressive outbursts and play, adolescents engage in violence and criminal activities, which can continue into adulthood, while adults also experience revictimization.

Keywords: Domestic abuse, witness, childhood, PTSD, behaviour

The Effects of Witnessing Domestic Abuse during one's Childhood, and Resulting PTSD, on one's Behaviour: A Systematic Review

Posttraumatic stress disorder (PTSD) is a psychiatric disorder that arises following exposure to a particular trauma or stressor. Symptoms include changes in arousal and reactivity, intrusive thoughts or memories regarding the event, avoidance behaviour, and negative changes in affect (American Psychological Association, 2013). Stressors that precipitate PTSD can include exposure to or witnessing a death, serious injury, (sexual) violence, and a threat to life (American Psychological Association, 2013). With regards to PTSD in childhood, the manifestation of PTSD is different to that of the manifestation of an adult, for example, children experience more sleep disturbances, such as nightmares, and concentration issues (American Psychological Association, 2013).

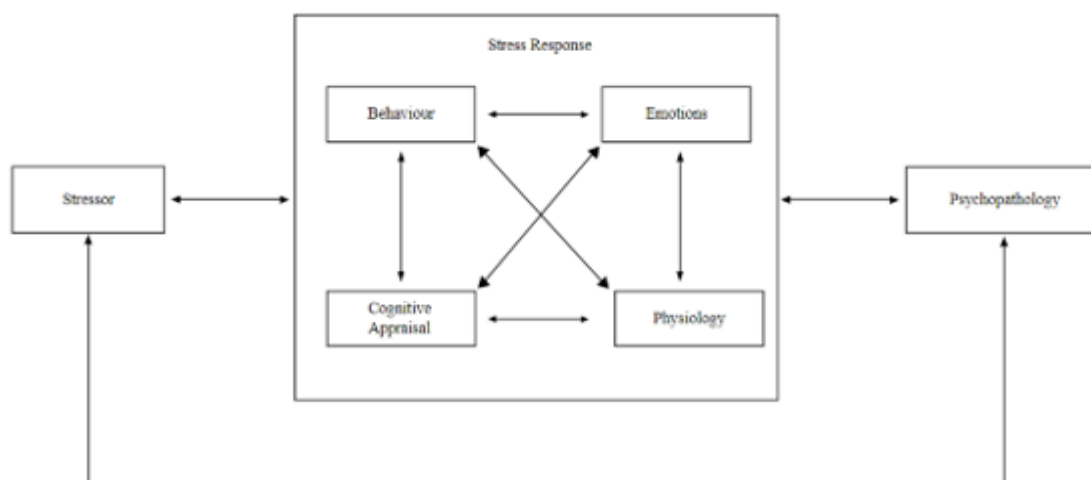
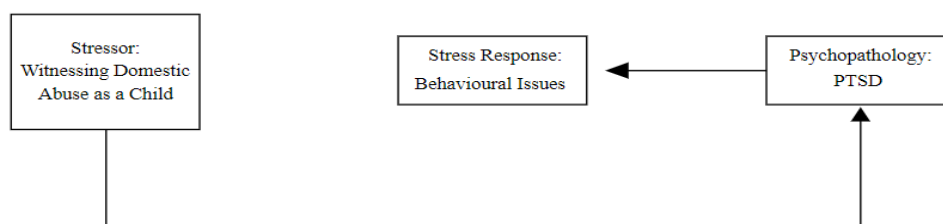
Under this definition provided by the DSM-V, witnessing and experiencing domestic abuse as a child could lead to the development of PTSD during one's childhood or later in life as an adult (Cooper et al., 2010; Erolin et al., 2014; Kulkarni et al., 2011; Lang & Stover; 2008; Lehmann, 1997; McCloskey & Walker, 2000; Nugent et al., 2009). According to the Centre for Family Justice and the United Nations, domestic abuse, also known as domestic violence, is defined as any behaviour that takes place within any type of relationship that is used as a tactic to control or have power over the other, which can include physical, emotional, and sexual abuse. Other terms used to describe domestic abuse include family violence, referring to any type of abuse occurring within the family setting, between family members, and intimate partner violence (IPV); however, IPV is exclusive to those in a romantic or intimate relationships (Centre for Family Justice, n.d.; Cooper et al., 2020; United Nations, n.d.). Another subtype of domestic abuse that focuses on children is child abuse, which is the abuse and neglect of a child. Child abuse can also include physical, emotional, and sexual abuse, neglect, or exploitation of a child (World Health Organization, 2020).

There are numerous negative impacts associated with experiencing PTSD, domestic abuse, or child abuse, for example, one could develop other psychiatric disorders, such as depression, anxiety, attachment disorders, conduct disorders, and adjustment disorders, as well as an increased risk of suicidality (Avanci et al., 2021; Kisiel et al., 2014; Lang & Stover, 2008; Lehmann, 1997; Lehmann & Elliston, 2001; McCloskey & Walker, 2000; Nugent et al., 2009). There is also the risk of physical injury and disability, and even death in some severe cases, as a result of the abuse (Erolin et al., 2014; McCloskey & Walker, 2000). Another consequence of exposure to abuse is financial burden, due to medical bills, and parents' inability to work or legal bills (Erolin et al., 2014).

When it comes to children, the effects of witnessing domestic abuse are also a developmental issue, for example, children sometimes 'play out' the violence or abuse, as they are not able to articulate their feelings (Lehmann & Elliston, 2001). Children who are exposed to domestic abuse can also have social skills and academic deficits (Avanci et al., 2021; Lehmann & Elliston, 2001). Children can also develop a tainted view of the world, as they may see the world as a dangerous place and can perceive themselves as vulnerable to harm (Lehmann, 1997). Furthermore, since children are most likely witnessing domestic abuse between their parents or caregivers, the reaction and support provided to the children following the incident greatly impacts the child's response to the experience. As if parents provide support afterwards this can reduce or mitigate and make the child more resilient to the negative impact of the event (Avanci et al., 2021; Erolin et al., 2014). On the other hand, if the abused caregiver does not provide support or also suffers from PTSD, then this can worsen the effects on the child and lead to worse PTSD symptoms, as a result of 'symptom spill over', which is when the PTSD symptoms of the abused caregiver, impact that of the child's PTSD symptoms, thus exacerbating the symptoms (Avanci et al., 2021; Cooper et al., 2020; Erolin et al., 2014; Lang & Stover, 2008).

This field of study is particularly important for a number of reasons, and extensive research has been carried out on the topic to reflect this. The first, and most obvious, reason is the sheer magnitude of people that are impacted by these issues. The prevalence rates of PTSD are 6.8% in adults and 5% in adolescents (National Institute of Mental Health, n.d.). With regards to domestic and child abuse, the prevalence rates of domestic abuse are 33.3% for women and 25% for men (NCADV, n.d.), and child abuse affects approximately one billion children around the world each year (World Health Organization, 2020). 16 % of children who are exposed to domestic violence, be that through witnessing it or experiencing it themselves, will develop PTSD as a result (Avanci et al., 2021).

This paper sets out to delve into this concept more, as we wish to explore whether or not PTSD resulting from witnessing domestic abuse as a child influences one's behaviour, and if so, how. This concept can be explored through examining the Stress Response Network Model. This model has been conceptualized following decades of research into the topic of stress and stress responses. It has been well established that different stressors elicit different stress responses, such as behavioural, emotional, cognitive, and physiological changes, which contribute to different psychopathologies as a result, in turn these also affect and contribute to one another, as illustrated in figure 1. This model links in with the topic of PTSD and domestic abuse quite nicely, as witnessing domestic abuse can be seen as the stressor, which leads to the psychopathology of PTSD, which in turn influences one's behaviour in a feedback loop, as depicted in figure 2. This paper aims to study this issue by carrying out a systematic review of the available literature on this topic. This review will be carried out by searching for and analysing academic papers discussing how PTSD and witnessing domestic abuse affect one's behaviour. We hypothesize that PTSD resulting from witnessing domestic abuse as a child would have a negative impact on one's behaviour, for example, one could be more violent and more vigilant and sensitive to other stressors throughout life.

Figure 1*Stress Response Network Model***Figure 2***Stress Response Network Model, relating to research question***Methods****Eligibility Criteria**

For the purpose of this systematic review, a number of inclusion and exclusion criteria were applied when reviewing the literature. With regards to inclusion criteria, all studies had to be empirical journal studies. The study sample had to include individuals who had witnessed domestic abuse or intimate partner violence (IPV) before the age of 18. Studies also had to assess PTSD symptoms of the witnesses using a standardized measure, such as the UCLA PTSD scale or other measurements based off of the Diagnostic Statistical Manual criteria. Potential behavioural problems of the witnesses also had to be assessed in order for a

study to be included, such behavioural problems could include attachment problems, aggressive behaviour, academic difficulties, problematic sexual or romantic behaviour, re-enacting the violence or other externalizing problems, such as avoidance, arousal issue, reexperiencing or hypervigilance. Studies had to include a measurement for these behavioural issues in their study in order to be included. Furthermore, studies also had to have an adequate sample size of at least 50 in order to be included.

Exclusion criteria for this review included studies that did not present original data, such as meta-analyses and literature reviews. Other exclusion criteria included intervention studies, case studies and unpublished dissertations. Studies that did not focus on witnessing domestic violence were also excluded. Studies which failed to include a standardized measure of PTSD in the child witness were also excluded. Studies that did not include a measurement for behavioural issues were not included, as were studies that did not include participants who witnessed IPV or domestic abuse during their childhood

Information Sources

Two literature searches were carried out on April 1st 2022, on the PsychINFO and the PUBMED (MEDLINE) search engines using access granted through the University of Groningen library. The snowball method was also employed, meaning the reference list of the selected studies were searched in order to find other studies which were suitable for inclusion.

Search Strategy

The research question search string was formulated according to the PICO standards, accounting for population, influence, concept or control, and outcome. The search string for PsychINFO: “ptsd or post traumatic stress disorder or posttraumatic stress disorder or post-traumatic stress disorder or c ptsd or c-ptsd or complex ptsd AND domestic violence or domestic abuse or intimate partner violence AND Behavior* or Behaviour* AND witness*” and the search String for PUBMED (MEDLINE): “ptsd or post traumatic stress disorder or

posttraumatic stress disorder or post-traumatic stress disorder or c ptsd or c-ptsd or complex ptsd AND domestic violence or domestic abuse or intimate partner violence or intimate partner abuse or family violence or spousal violence or spousal abuse AND behavior* or behaviour* AND witness*”. No other additional limitations or restrictions were applied to the literature search.

Selection Process

A manual hand search was carried out on the results from both PsychINFO and PUBMED (MEDLINE). Studies were screened based on their title and abstract, if the title and abstract were deemed relevant and no exclusion criteria were present the study was selected to be read in its entirety and assessed based on the aforementioned inclusion and exclusion criteria. Studies meeting the inclusion criteria and that did not possess any exclusion criteria were selected for this systematic review.

Data Collection Process

Relevant data pertaining to the research question, of the effects of PTSD resulting from witnessed domestic abuse on one’s behaviour, was extracted manually through reviewing the literature. Relevant data was then inputted into an Excel spreadsheet.

Data Items

Relevant data items which were collected from the included studies include: descriptive statistics, statistics regarding the relationship of how witnessing domestic abuse effects one’s behaviour, and effect sizes and significance rates.

Descriptive statistics included the sample size of the study, the age of the sample, the sex and gender breakdown of the sample group, and the ethnic and racial background of the sample.

Statistics regarding the relationship between PTSD and witnessing domestic abuse as a child and one's behaviour included correlations between the two above factors, standardized effect sizes, percentages, means and standard deviations, and β slopes.

Study Risk of Bias Assessment

Due to the nature of this study, as it is a bachelor's thesis, and the time and funding constraints that apply to this, this study did not carry out a risk of bias assessment.

Effect Measures

The measures showing the relationship between PTSD as a result of witnessing domestic violence as a child and experiencing behavioural problems were transformed from Pearson's correlations, and means and standard deviations into the standardized effect size of Cohen's *d*. Means and standard deviations were converted into Pearson's correlation manually. All correlations and remaining measures were then transformed into Cohen's *d* using the ESCAL effect size converter. Confidence intervals were also computed manually using data extracted from the studies.

Synthesis Methods

Due to the nature of this study, as it is a systematic review for a bachelor's thesis and not a full meta-analysis, a synthesis was not performed.

Reporting Bias Assessment

Due to the nature of this study, and its' time constraints, a formal reporting bias assessment was not carried out.

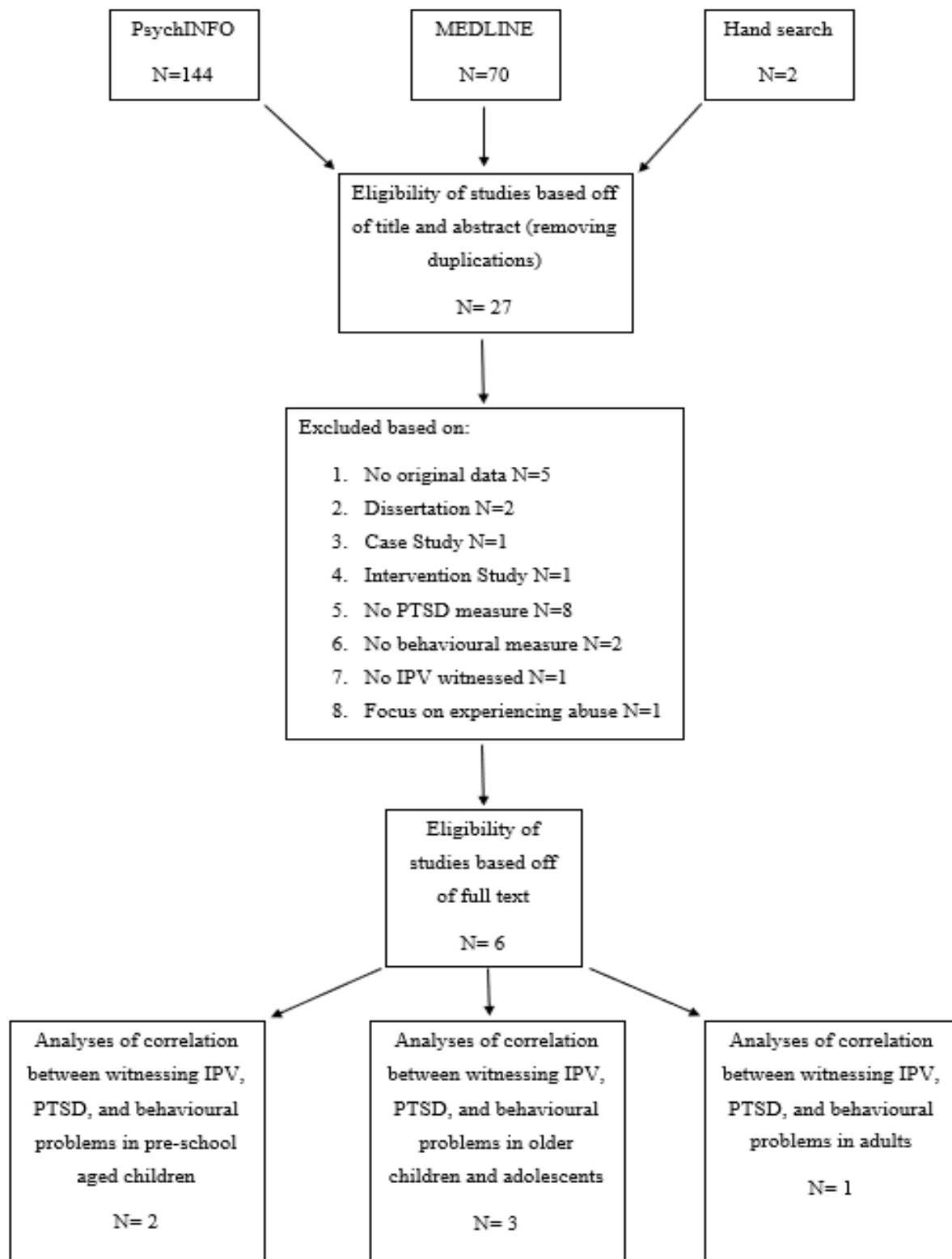
Certainty Assessment

Due to the nature of this study, and its' time constraints, a formal certainty assessment was not carried out.

Results

Study Selection

Following the literature search for PsychINFO and MEDLINE (PUBMED), using the aforementioned search string, a total of 144 and 70 articles, respectively, were identified. An additional two articles were added via hand search, using the snowball method. Following a manual screening of the search results, 27 articles were selected for further examination, after removing overlapping articles. Finally, six articles were selected for inclusion in the systematic review and data analysis. The other 21 studies were excluded on the basis on failure to meet the inclusion criteria, and for meeting the exclusion criteria; five studies were excluded on the basis of being a literature review or meta-analysis, one study was excluded as it was an intervention study, another one study was excluded as it was a case study, two additional studies were excluded as they were unpublished dissertations, eight studies were excluded as they did not include a PTSD measure for the abuse witnesses, two studies were excluded on the basis of not having a behaviour measurement, one study was excluded as it did not include witnessing IPV or domestic abuse, and one study was excluded as it focused experiencing domestic abuse. A flow chart of the results of the literature review is illustrated in figure 3.

Figure 3*Flowchart of Selection Process*

Study Characteristics

The six collected studies can be grouped into three categories: studies about young children (three to six year olds), studies addressing older children and adolescents (eight to 18 years of age), and studies about adults who witnessed domestic violence during their childhood (over 18 years old). An overview of each study's characteristics, e.g. sample size, participant demographics, assessment measure, raw data and effect sizes, is illustrated in table 1.

Studies Regarding Young Children

Levendosky et al. (2002) and Graham-Bermann et al. (2012) studied young children, from the ages of three to six. These studies sought to examine the link between children, of the ages of three to six, witnessing and/ or hearing domestic abuse and how this affects their behaviour and contributes to behavioural problems. Information regarding the abuse the child witnessed, the child's posttraumatic stress symptoms, and the child's behavioural issues was gathered from structured interviews with the witness' mother.

The study conducted by Levendosky et al (2002) consisted of 62 children between the ages of three and five, with 58.7% of participating children being female. Mothers reported the IPV the children witnessed using the Severity of Violence Against Women Scales (SVAWS) questionnaire. Maternal report measure consisted of the Child Behavioural Checklist (CBCL) to assess behavioural problems in children and the PTSD PAC questionnaire to assess PTSD symptoms in young children. Levendosky et al. defined behavioural problems as aggressive outbursts and play.

Graham-Bermann et al. (2012) had a sample size of 120 children, 47% of which were female from the ages of four to six. Maternal reports were also utilized in this study, with behavioural problems being assessed with the Child Behavioural Checklist (CBCL), and PTSD symptoms were assessed using the Posttraumatic Stress Diagnostic Scale (PDS).

Studies Regarding Older Children and Adolescents

Moretti et al. (2006), Stover et al. (2017), and Yoon et al. (2016) conducted studies that focus on the effects of witnessing IPV on the behaviour of older children and adolescence.

Yoon et al. (2016) examined the link between witnessing domestic abuse, PTSD and behavioural problems in children between the ages of eight and 15, with an almost even distribution between males and females (53.8% female). Yoon et al. (2016) performed a secondary analysis on data provided by participants of the National Survey of Child and Adolescent Well-Being (NSCAW), which resulted in a sample of 2,064. In this study, behavioural problems were operationalized as delinquency and aggression, which were assessed using the Child Behaviour Checklist (CBCL). PTSD symptoms were also measured using the Trauma Symptom Checklist for Children (TSC-C), the domestic abuse that children were exposed to was reported using the Witnessing Violence subscale of the Violence Exposure Scale for Children (VEX-R).

Stover et al. (2017) studied the relationship between PTSD and witnessing IPV as a child and externalizing behaviour problems, such as delinquency, substance abuse and other criminal behaviours, potential revictimization was also examined. Stover et al. (2017) assessed a sample of 8,446 children, aged seven to 18, obtained from the National Child Traumatic Stress Network (NCTSN) patient centres. 53.6% of participants were female. Assessment measures include the UCLA PTSD-RI-Child self-report survey and the CBCL to assess externalizing behaviour problems. Abuse witnessed and revictimization was assessed using the Trauma History Profile (THP). Stover et al. performed this study by carrying out analyses on the client reports obtained from the NCTSN and by obtaining new information during self-report interviews and questionnaires.

Moretti et al. (2006) assessed how witnessed IPV, by either the father or the mother, correlates with aggression in different forms of relationships in adolescent boys and girls. The study included 112 adolescents from the ages of 13 to 18, of which 56.3% are female. Participants were sampled based off of referrals from correctional facilities and centres for severe behavioural problems. The study was conducted through interviews and self-report questionnaires, assessment tools include the Family Background Questionnaire, which was utilized to establish the type, severity, frequency, and perpetrator of the IPV the child witnessed, the Diagnostic Interview for Children and Adolescents-IV (DICA-IV) was used to assess the participants PTSD symptoms, and the Conflict Tactics Scale (CTS) was used to assess the participants' aggression and violence towards others. The CTS was assessed on four subscales, each measuring the violence and aggression towards an individual/ group; these subscales include, CTS-Mother (CTS-M), CTS-Father (CTS-F), CTS-Romantic Partner (CTS-RP), CTS-Friend (CTS-Fr).

Studies Regarding Adults

Cascardi (2016) examined how witnessing domestic abuse during one's childhood affects women's behaviour during adulthood. Cascardi specifically looked at how witnessing domestic violence relates to later victimization in dating behaviour in adult women. Cascardi carried out a prospective study using data and participants obtained from Child Protective Services (CPS) and the National Survey of Child and Adolescent Well-Being (NSCAW), the final sample included 535 women over the age of 18. Participants took part in a number of in-person and online structured interviews to assess the abuse they witnessed, their PTSD and other mental health symptomatology, and their behaviour and recurrent victimization patterns; these topics were assessed using the Trauma Symptoms Checklist for Children (TSC-C) and the Conflict Tactics Scale (CTS).

Table 1*Study Characteristics*

Study	Sample			Country	PTSD	Behaviour	Raw Data	Effect size (Cohen's <i>d</i>)
	Size (N)	Age	% Female		Measure	Measure		
Moretti et al. (2006)	112	13-18	56.3	Canada	DICA-IV	CTS	$r = -0.07-$ 0.58*	0.51 ^a
Levendosky et al. (2002)	62	3-5	58.7	USA	PTSD PAC	CBCL	$r = 0.32^*$	0.68*
Graham-Bermann et al. (2012)	120	4-6	47	USA	PDS	CBCL	$d =$ 0.47***	0.47***
Cascardi (2016)	535	>18	100	USA	TSC-C	CTS	$r = 0.17^{**}$	0.35**
Stover et al. (2017)	8,446	7-18	53.6	USA	UCLA PTSD- RI	CBCL, THP	$M = 63.1,$ $SD =$ 11.2*	2.74*
Yoon et al. (2016)	2,064	8-15	53.8	USA	TSC-C	CBCL	$r = 0.15^{**}$	0.30**

Note: DICA-IV= Diagnostic Interview for Children and Adolescents-IV; CBCL= Child

Behaviour Checklist; CTS= Conflict Tactics Scale; PTSD PAC= PTSD symptoms in

Preschool Aged Children; PDS= Posttraumatic Stress Diagnostic Scale; TSC-C= Trauma Symptoms Checklist for Children; UCLA PTSD-RI= UCLA PTSD Reaction Index, THP= Trauma History Profile

r =Pearson's Correlation; M=Mean; SD=Standard Deviation.

^a this represents a combined effect size for Moretti et al. (2016), individual effect sizes are visible in figure 5.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Risk of Bias in Studies

No formal risk of bias measure was performed.

Results of Individual Studies

Following data extraction and data analysis to establish Pearson's correlation coefficient and Cohen's d effect sizes, it is clear that all six of the final selected studies support the hypothesis that witnessing domestic abuse during one's childhood, and developing PTSD as a result, has a negative impact on one's behaviour and leads to a variety of behavioural problems. All reported and calculated effect sizes were significant and spanned between small effect sizes of $d=0.3$ to very large effect sizes of $d=2.74$, with a multitude of mid-ranges in between, with a p-value of $p < 0.05$. A summary of the effect sizes and the correlations and other raw data from the studies can be seen in table 1. Figure 4 also presents the effect sizes in a forest plot with 95% confidence intervals.

Studies Regarding Young Children

Levendosky et al. (2002) reported a correlation coefficient of $r = 0.32$, $p < 0.05$, between being exposed to domestic violence and exhibiting behavioural issues in young children. This corresponds to an effect size of 0.68, indicating a medium sized effect or relationship between the two variables.

The study by Graham-Bermann et al. (2012) resulted in a Cohen's d effect size of $d=0.47$, with $p<0.001$, thus illustrating a medium effect between witnessing domestic abuse and experiencing behaviour problems in young childhood.

Studies Regarding Older Children and Adolescents

Yoon et al. (2016) reported a correlation of $r =0.15$, with $p<0.05$, between witnessing IPV and delinquency and aggressive behaviour. This correlation coefficient transforms into a small Cohen's d effect size of 0.30.

Stover et al. (2017) reported a mean of 63.1 and a standard deviation of 11.2 for experiencing externalizing behavioural problems, and a mean of 27.2 and standard deviation of 14.8 for those with PTSD as a result of witnessing domestic violence during one's childhood. This converts to an effect size of $d=2.74$, with $p<0.05$, indicating a very strong association between the two variables.

Moretti et al.(2006) reported several correlation coefficients, each illustrating the different relationships between IPV perpetrated by either the mother or father and aggressive behaviour towards the mother (CTS-M), father (CTS-F), one's romantic partner (CTS-RP), or friends (CTS-Fr) in boys and girls. For girls, IPV by the mother resulted in $r =0.25$, $d=0.52$ for CTS-M, $r =0.19$, $d=0.39$ for CTS-F, $r =0.30$, $d=0.63$ for CTS-RP, and $r =0.35$, $d=0.75$ for CTS-Fr. IPV by the father resulted in $r =0.26$, $d=0.54$ for CTS-M, $r =0.40$ $d=0.87$ for CTS-F, $r =0.15$, $d=0.30$ for CTS-RP, and $r =0.27$, $d=0.56$ for CTS-Fr. For boys, IPV by the mother resulted in $r =0.07$, $d=0.14$ for CTS-M, $r = 0.06$, $d=0.12$ for CTS-F, $r =0.58$, $d=1.42$ for CTS-RP, and $r =0.01$, $d=0.02$ for CTS-Fr. IPV by father resulted in $r = -0.07$, $d= -0.12$ for CTS-M, $r =0.28$, $d=0.58$ for CTS-F, $r =0.31$, $d=0.65$ for CTS-RP, and $r =0.39$, $d=0.85$ for CTS-Fr. All results were significant, with $p<0.05$. An overall combined effect size illustrating the relationship witnessing IPV and aggressive behaviour in adolescence is $d=0.51$. Due to the

magnitude of results produced by Moretti et al., the overall effect size is illustrated in figure 4, while a separate forest plot displays the individual results of each subscale in figure 5.

Studies Regarding Adults

Cascardi (2016) reported a correlation of $r = 0.17$, with $p < 0.01$, between witnessing domestic abuse during one's childhood and being revictimized in one's dating life as an adult. This resulted in a small, yet significant effect size of $d = 0.35$.

Results of Syntheses

No formal synthesis or meta-analysis of results was carried out.

Reporting Bias

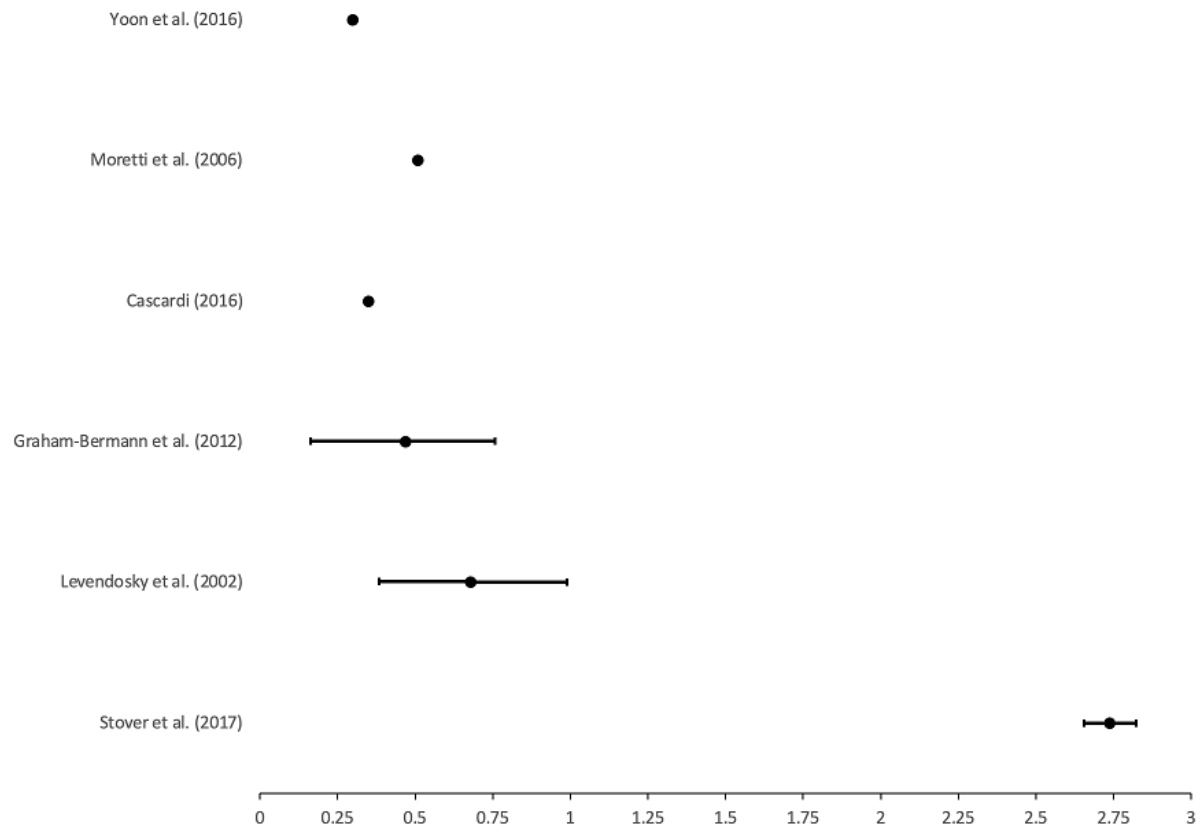
No measurement of reporting bias was performed in this study.

Certainty of Evidence

No formal measurement of certainty of evidence was performed in this systematic review.

Figure 4

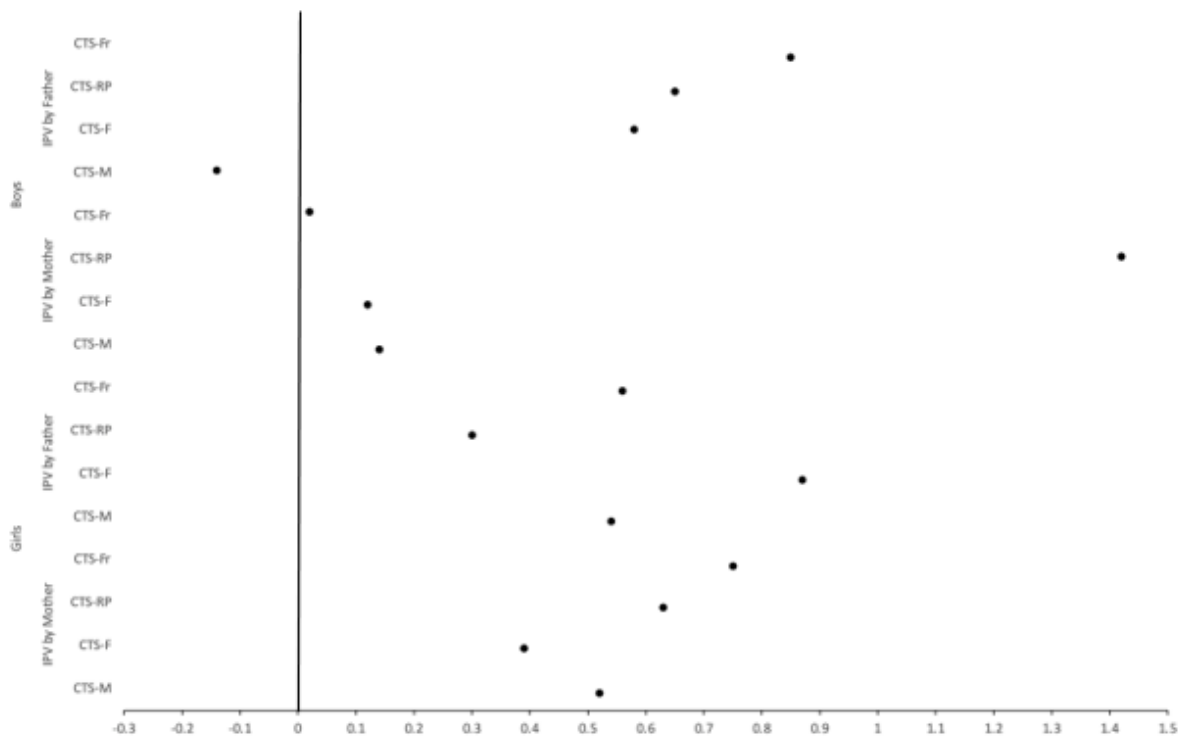
Forest Plot of Effect Sizes (Cohen's d), with a 95% confidence interval



Note: Cascardi (2016), Moretti et al. (2006), and Yoon et al. (2016) did not provide sufficient data to calculate a 95% confidence interval.

Figure 5

Moretti et al. (2006)- Forest Plot of the CTS Subscale Effect Sizes (Cohen's *d*)



Note: These effect sizes illustrate the differences between boys and girls, and the differences in witnessing the mother or father as the aggressor, in how aggressive they are in different relationship types. These results show that boys exhibit the greatest variety in their aggressive behaviour, with the highest association being showing aggression towards a romantic partner after witnessing the mother abuse ones' father. Furthermore, witnessing the father abuse ones' mother showed a negative association between being violent towards ones' mother in boys. With regards to female witnesses, girls exhibited more consistent results across patterns of aggression.

Discussion

This paper aimed to examine the effects of witnessing domestic violence during one's childhood, and the resulting PTSD, on one's behaviour, with regards to the Stress Response Network Model. It was hypothesized that witnessing domestic abuse, and showing symptoms of PTSD as a result of this would have a negative impact on one's behaviour throughout life. This study was carried out through means of a systematic review of the available literature across different search engines. Results from this systematic review indicate that witnessing domestic violence as a child has a negative impact on one's behaviour, thus resulting in a variety of behavioural issues across different age groups.

With regards to young children, Levendosky et al. (2002) and Graham-Bermann et al. (2012) both illustrated that children exposed to IPV showcased behavioural issues, such as aggression, violent outbursts, and "playing out" violence. These results indicated medium effect sizes, of $d= 0.68$ and $d= 0.47$, respectively, meaning that witnessing domestic abuse and experiencing PTSD symptoms as a child between the ages of three and six is related to experiencing behavioural issues at this age. There are a multitude of reasons as to why this effect may occur, for example, young children may engage in aggressive play or 'play out' violence, as they are too young to fully understand what they have witnessed, and they may not be able to articulate what they exposed and their feelings (Erolin et al., 2014; Graham-Bermann et al., 2012; Lang & Stover., 2008; Lehmann & Elliston, 2001; Levendosky et al., 2002; Liebeman et al., 2005; Kitzmann et al., 2003; Stein, 2004). Another possible explanation for these resulting behavioural issues is that since the children were so young when they were exposed to this violence in the home setting, they perceive this as the norm, as this is all they know, thus leading young children to believe that it is acceptable to act in such a way (Erolin et al., 2014; Graham-Bermann et al., 2012; Lang & Stover., 2008;

Lehmann & Elliston, 2001; Levendosky et al., 2002; Liebeman et al., 2005; Kitzmann et al., 2003).

With respect to older children and adolescents, witnessing domestic abuse was associated with aggression, delinquency, substance abuse, and other criminal behaviour (Moretti et al., 2006; Stover et al., 2017; Yoon et al., 2016). However, within this age range of eight to 18, there was a large variation with regards to the size of the effect. For instance, Yoon et al. (2016) showcased a small effect size of $d= 0.30$, meaning witnessing domestic violence as a child was somewhat linked to children and adolescents exhibiting aggressive and delinquent behaviour, whereas Stover et al. (2017) resulted in a very large effect size of $d= 2.74$, meaning that witnessing domestic violence during childhood was strongly linked with a variety of behavioural problems, such as delinquency, criminal activities, substance abuse, and potential victimization in one's own relationship. A large variation in effect sizes is observed between these studies, possible explanations for this include the large difference in sample size, and different behavioural and PTSD measures used by each study. Another possible reason for this difference could be that both studies examined different behavioural issues.

Moretti et al. (2006) provided an in-depth account of how witnessing domestic violence is related to aggressive behaviour in adolescents. This study illustrated both the differences between male and female witnesses, as well as the different effects based on whether the mother or father was the aggressor in the IPV. Girls who witnessed the mother being violent towards the father were aggressive towards their family, romantic partner and friends, with the highest association being violent towards friends, and the weakest association being violent towards their father. Girls exposed to violence by the father also exhibited violent behaviour towards their family and friends; however, they were more likely to be aggressive towards their father, and least likely to be aggressive towards their romantic

partner. For boys, witnessing the mother as the aggressor was only linked with aggressive behaviour towards a romantic partner; it is important to note that this association was extremely strong. When boys witnessed their father as the aggressor in the IPV, boys were recorded being violent towards their father, friends and romantic partner, but not towards their mother.

There are a multitude of explanations for these results in adolescents, for example, due to early exposure to violence during one's development, one might perceive violence and aggression as the norm, thus leading children and adolescents to act aggressively as they do not see the issue with it (Kitzmann et al., 2014; Lang & Stover, 2008; Lehmann & Elliston, 2001; Moretti et al., 2006; Stover et al., 2017; Terr, 1991; Yoon et al., 2016). Furthermore, acting out in aggression, or engaging in criminal activities, could be due to the emotional distress the witness is experiencing (Moretti et al., 2006; Stover et al., 2017; Yoon et al., 2016), and given the individuals young age, and their possible limitations in expression and constructive outlets, this could be the only way the young witness can express their emotions (Moretti et al., 2006; Stover et al., 2017; Terr, 1991; Yoon et al., 2016). Furthermore, with regards to the issue of substance use, another possible explanation for this may be that this could be used as a coping mechanism or an 'escape' from their reality (Avanci et al., 2021; Kitzmann et al., 2011; Lang & Stover et al., 2008; Stover et al., 2017; Yoon et al., 2016).

Finally, witnessing domestic violence during one's childhood continues to affect one's behaviour and PTSD symptomology into adulthood, as reflected by Cascardi (2016). This article highlights the link between witnessing domestic violence as a child, experiencing PTSD symptoms and falling victim to domestic abuse, in other words revictimization, as an adult. This link has a small effect size of $d= 0.35$, indicating that the link is small, yet still significant. As previously discussed, there are numerous possible explanations for these results, this could be due to the exposure to violence in a romantic relationship at a young age,

during one's formative years, one could perceive this behaviour as normal and see it is a normal part of dating and being in a relationship with someone (Cascardi, 2016; Cooper et al., 2020; Kitzmann et al., 2003; Moretti et al., 2006; Park & Kim, 2018; Shen, 2009). Being exposed to IPV and resulting emotional and psychological issues, such as PTSD, could negatively affect one's self-esteem and self-image, possibly leading them to accept such treatment in a relationship, as they think it is justified, that they deserve it, or that this is the best they can do (Cascardi, 2016; Kitzmann et al., 2003; Park et al., 2018). Furthermore, due to the individual growing up in an unstable environment, as the participants for Cascardi (2016) were sampled from the Child Protective Services (CPS) case files, the individual could be searching for a family or relationship of their own at all costs, thus leading them to accept violence in their relationship (Cascardi, 2016).

With regards to possible explanations for the difference in magnitude of the effect sizes, such as differences in the impact witnessing the abuse had on different behaviours, in other words, witnessing IPV, and resulting PTSD, may lead to different behavioural problems, and as such different operationalizations of behavioural issues would lead to different results. Other explanations for the variation in results between studies include sample size and the different methods of conceptualizing witnessing IPV, PTSD symptoms, and behavioural problems.

Strengths of the Systematic Review

There are a number of strengths associated with this systematic review. Given the nature of a systematic review; the systematic, organized analysis of available literature regarding the subject of interest. This provides a good insight into all research on the topic, thus providing an overview of results on the topic from different types of studies and theoretical understandings surrounding the topic. Another strength of this study is that of the

selected studies, they examine the link between witnessing IPV, resulting PTSD, and behavioural problems across different age groups.

Limitations of the Systematic Review

This systematic review also has a number of limitations and weaknesses, which can be divided into limitations regarding this review and study itself, or limitations pertaining to the studies selected for this review. With regards to the systematic review of this paper, weaknesses include limitations to the search procedure, selection of studies and review of studies, as this was all carried out by one person, thus resulting in possible bias and misunderstanding of results. Furthermore, as only one person had to review hundreds of literature results in a short period of time, there is potential for possible exclusions of studies of value and interest. Limitations are also associated with the actual search string used, thus leading to limitations with the available studies to be reviewed. The select search string was perhaps too general, leading to an abundance of results, some of which were not relevant, while also possibly failing to identify other relevant studies.

Limitations of the Selected Studies

With regards to the selected studies for this review, each one possesses their own weaknesses and limitations. Levendosky et al. (2002) and Graham-Bermann et al. (2012) both assess young children, a possible limitation associated with these studies is that they both rely on maternal reports for the child's behaviour and PTSD symptoms, these reports could be biased in either direction, as they could be exaggerating the behavioural and emotional issues of the child, or they could be minimizing these issues, either consciously or unconsciously, for a range of reasons.

A limitation of Moretti et al. (2006) refers to the sampling of the participants and the possible lack of generalizability to the general population. This is due to the fact that participants in this study were referred from adolescents in correctional facilities

Cascardi's study focusing on adult behaviour exhibited a number of limitations, most obvious being that it only included female participants. Another limitation of this study concerns the pool from which participants were selected, as participants were selected from CPS case files they would have been removed from their immediate family and could have been placed in the foster care system, thus resulting in a tumultuous upbringing, with the possibility of been moved from home-to-home frequently, and exposure to other forms of abuse and hardships in life; thus possibly tainting the study's results.

Future Directions

These results open up several new avenues for future studies, such as further studies assessing the Stress Response Network Model, thus exploring different stressors, psychopathologies, and stress responses. Future studies could also explore the link between witnessing IPV and behavioural issues in a number of different ways, such as longitudinal studies that follow witnesses throughout different time periods of their life, thus highlighting the long term effects and how one's response may change as they grow up. Future studies could also build upon Moretti et al. (2006) results and examine the different links between parent aggressors and victims of the witness's aggression, this could also explain the reasons for such results. Other possible study options could be to operationalise behavioural responses in different ways, for example, attachment styles or parenting techniques. Another possible avenue for future exploration could be intervention and treatment studies, in which other treatments and outlets are researched in aiding child witnesses to IPV, such as art, music or play therapy as an outlet to express themselves and work through their emotions, or other intervention programs in order to prevent future victimization.

Conclusion

In conclusion, it is clear from this systematic review that witnessing domestic violence during one's childhood, and the resulting PTSD, has a negative impact on one's behaviour

throughout their life, as a number of behavioural issues have been observed and reported in the available literature. Evidence also shows that different age groups exhibit different behavioural issues, for instance, children exhibit aggressive outbursts and play, adolescents engage in violence and criminal activities, which can continue into adulthood, while adults also experience revictimization. Further, these results also support the Stress Response Network Model, as these links discussed between the stressor (witnessing domestic violence), psychopathology (resulting PTSD), and resulting stress response (behavioural issues) have been illustrated through the above review and results of selected studies.

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