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A Comprehensive Review of Post-Traumatic Stress Disorder (PTSD) in Children

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By

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Table of Contents

Abstract

Post-traumatic stress disorder in children under six years old has been formally recognized since 2013 (Veteran's Affairs, 2019), yet the body of research is still lacking for this age group. An important step towards helping these youngest sufferers of post-traumatic stress disorder is to determine whether symptomology assessments, social supports, and treatments that exist for older children can apply to those who are younger than six suffering from the disorder. This comprehensive literature review compiles the research on post-traumatic stress disorders in children from six to seventeen years old in Western Educated Industrialized Rich Democratic (WEIRD) countries. Topics covered in this analysis include definitions and diagnostic criteria, the symptoms of post-traumatic stress disorder, the causes of PTSD, risk factors of PTSD, the importance of social support and treatment practices. Common themes and gaps in the literature were identified, including a disproportionate focus on sexual abuse as the cause of PTSD in children (overlooking areas such as physical abuse and maltreatment), that females are more often reported and diagnosed, and that little research exists directly comparing PTSD sources, symptoms, or treatment for children younger and older than age six. The findings of this analysis suggest that more research needs to be done on the sources of PTSD, preventative measures, assessing symptomology, and effective treatments for children under six years old.

Introduction

Post-traumatic stress disorder can affect an individual at any age. The most recent addition to DSM-V shows that Post-Traumatic Stress disorder can occur in children at the age of six or younger (DSM-5 Criteria for PTSD, 2019). Post-traumatic stress disorder in children (under the age of seventeen) has only formally been recognized in the Diagnostic and Statistical Manual since 2013, yet the topic is becoming more prevalent in society and in research (DSM History, 2019). Indeed, in a study of 10,000 adolescents by the National Comorbidity Survey Replication, "5% of [those] adolescents met criteria for PTSD…and [prevalence increases] with age (Veteran's Affairs, 2018). It should be noted, however, that there is a difference in how some symptoms may express themselves among different age groups (Veteran's Affairs, 2018). Specifically, children under the age of six may express PTSD through issues in sleeping and distress when not near their parents; children between the ages of seven to eleven may also have issues with sleep, in addition to becoming more aggressive, absenteeism in school, or reenactments of their trauma through play; for those twelve and older, their symptoms tend to express themselves in the same ways as adults (Veteran's Affairs, 2018). In the EBSCO PsychINFO database, when the terms "PTSD" and "children" are searched together, 8,069 items are found in the search. On GoogleScholar, when these same terms are searched together, a staggering 229,000 results are found. Additionally, when post-traumatic stress disorder is searched with adolescent (or school aged) individuals, the results are still overwhelming at 187,000 hits. The combinations of terms that are linked to post-traumatic stress disorder and children are endless, as are the results of the searches; this displays that the development in post-traumatic stress disorder in children and adolescents is not an uncommon problem.

This integrative literature review seeks to evaluate, critique and synthesize information regarding post-traumatic stress disorder in children (Torraco, 2016). It is an attempt to integrate prior research and identify any gaps that exist in the previous literature, in addition to raising new questions that have yet to be answered. Much of the literature that exists is not specific to children under aged six that are at risk for developing post-traumatic stress disorder, and this review seeks to analyze existing research on post-traumatic stress disorder in adolescents to aid these youngest individuals who are often excluded in research. Although the research on the topic of PTSD in children is rising, current research seems to have a narrower focus on children ages seven and older, as well as what causes PTSD in these individuals. The occurrence of PTSD in very young children has only been noted since 2013, and there is not yet prevalent research. With the addition of the specification of PTSD in children under six years old to the DSM-V in 2013, it is integral to analyze whether the causes, effects, as well as the treatments that are effective in older children are also effective in young children. Additionally, many parents do not know how to properly identify the symptoms of PTSD in their children, particularly if the traumatic event happened outside of their presence (Dyregov & Yule, 2006). This integrative analysis of the literature seeks to combine the areas with the most research to date, such as causes, symptoms, effects, and treatment, in order synthesize new questions of how the children under six years old may be easier identified and treated. It is essential to develop and assess this research regarding post-traumatic stress disorder in children six and under and to conduct further investigative studies preventatively before the consequences of PTSD are unable to be reversed or assisted.

Methods

The articles for this literature review were found by searching a combination of terms regarding post-traumatic stress disorder among children and adolescents. Searches were restricted to peer-reviewed journals, with a focus on children under the age of 17 years old. Publication dates of the searches were not restricted due to the limited number of sources with information regarding the specifics of post-traumatic stress disorder among children. Initially, the types of articles found when having a restricted year range (2013- present) were very limited and did not provide the type of articles that went into detail about the specific triggers and causes of post-traumatic stress disorder among children. The types of articles included in this integrative literature review were limited to research that focused on WEIRD (western, educated, industrialized, rich, democratic) societies for specificity of this review. Although there were articles found regarding post-traumatic stress disorder among children in countries that did not fit this description, the specifics allowed for a narrower range of focus on these WEIRD societies that have children who are suffering from post-traumatic stress disorder. Moreover, many of the articles that were excluded, even if they were in WEIRD countries, were related to political and economic issues within the countries, or from war traumas. This research was less applicable to gain understanding of children with post-traumatic stress disorder in WEIRD countries. Articles were searched in GoogleScholar and EBSCO PsychINFO databases, with search terms ranging from “PTSD in children”, “Post-Traumatic Stress Disorder and children” “PTSD and sexual abuse in children” “PTSD treatment in children” “PTSD and maltreatment in children” “PTSD and neglect in children”, and all synonymous values of these search terms. Articles that were included in this review were found within these specific search terms, have abstracts that related to the topic of this literature review, and contained information within their body that would contribute to the appropriate synthesis and

critique of the literature, such as that of the causes, symptoms, effects, and treatment of post-traumatic stress disorder.

Definition and Diagnostic Criteria

Defining PTSD

For an individual over the age of six to be diagnosed with post-traumatic stress disorder they must first experience a traumatic event, and express one or more of the four following symptoms: "reliving the event, avoiding situations that remind [them] of the event, negative changes in beliefs and feelings, and hyperarousal" (Veteran's Affairs, 2018). In children, the manner that the expression of symptoms are displayed can differ from adults. Specifically, symptoms of post-traumatic stress disorder in children are most commonly expressed within their play or their behavior, by "acting out" the incidents that have occurred to them, or through a general tendency towards aggression and impulsive behaviors (Hamblen & Barnett, 2003, p.2). Contrarily, in adults, there are issues with sleep, negative belief systems, and general avoidance of any triggering scenario. (Veteran's Affairs, 2018). Furthermore, it is expected that adults can verbally discuss these traumatic events and their feelings about them. In younger, and school-aged children, it is very possible that they do not yet have the means to communicate the appropriate thoughts and feelings that they have regarding the situation, and as such, express themselves in a verbal way.

The primary factors that determine if a child will develop post-traumatic stress disorder are "the type of event and the intensity of exposure" (Hamblen & Barnett, 2003, p.1). The requirement of a traumatic event is an event that is "outside of the usual human experience… [that are] deemed so severe that preexisting psychopathology is not necessary for victims to experience [the disorder]" (Keppel-Benson & Ollendick, 1993, p.30). Yet, the types of events that are considered traumatic may vary from individual to individual. It is also very possible that

a child may experience a traumatic event, and not develop post-traumatic stress disorder (Kaminer, Seedat, & Stein, 2005).

Within post-traumatic stress disorder (PTSD), there are two subtypes that can occur. Type I PTSD stems from the experience of a one-time traumatic event and is a more acute form, while Type II PTSD stems from reoccurring stressors or chronic feelings of distress (Keppel-Benson & Ollendick, 1993). Children that have Type I PTSD will commonly display the trademark symptoms of post-traumatic stress disorder, including recollection of the event, avoidance, and hypersensitivity, and be able to recall the event more easily (Keppel-Benson & Ollendick, 1993). Most often, children that are diagnosed with post-traumatic stress disorder will fall into the category of Type II PTSD, however (Jabour, 2015). These children are more likely to have drastic personality and developmental issues, ranging from limited emotional expression to major behavioral problems, as well as possible detachment from reality (Keppel-Benson & Ollendick, 1993). This literature review will focus on both single-exposure (Type I) and repeated exposure (Type II) post-traumatic stress disorder.

Diagnosing PTSD

Diagnostic Tools

For any individual to be diagnosed with post-traumatic stress disorder three criteria are absolute: the symptoms must last for a period of one month, they must cause life distress, and they must not stem from any other diagnosable cause or side effects of medication (Veteran's Affairs, 2018).

Children Eleven and Older. In order to diagnose a child at or over the age of eleven with post-traumatic stress disorder, they are assessed using the same eight criteria for post-traumatic stress disorder from the DSM-V that are used with adults during a clinical interview

(Veteran's Affairs, 2018). According to the Substance Abuse and Mental Health Services Administration (SAMSA), Post-Traumatic Stress Disorder (PTSD) among adults is formally defined by eight criteria with specifications, summarized by the following:

Criterion A: There is exposure to a traumatic event (such as death, injury or violence) by directly experiencing or witnessing such event, or by learning of the details from a close friend or family member where extreme details of the traumatic event are heard or shared. Criterion B: At least one or more intrusive symptoms associated with the traumatic event, after the event occurred, including intrusive thoughts, troubling dreams causing distress, flashbacks (or reenactment in children), psychological distress or reactions to cues that trigger memories of the event. Criterion C: Avoidance of stimuli that are connected to the traumatic event, after the event occurred by either making efforts to avoid feelings associated or external reminders associated with the traumatic event. Criterion D: At least two or more symptoms of negative mood or thoughts as displayed by inability to recall the event (or aspects of it), low self-esteem, perceived guilt, negative affect, lack of interest in activities, voluntary separation from others, lack of positive affect. Criterion E: At least two or more symptoms of changed arousal or reactivity occurring after the event, as displayed by irritability, self-destructive behavior, hyperarousal, being easily startled, lack of concentration, issues with sleep. Criterion F: The feelings of Criteria B, C, D, and E occur for more than one month. Criterion G: The feelings of prior criteria are causing significant impairment in daily functioning or distress. Criterion H: The disorder is not caused by any other medical conditions or substances. Furthermore, upon diagnosis it must be specified if there are dissociative symptoms (such as depersonalization and derealization) or delayed expression (symptoms appearing after six months of the event*)* (SAMSA, 2014, p. 82-83).

Children Seven to Eleven. For children under the age of eleven, additional tools exist in addition to the standard DSM-V criteria that can be used to assess symptomology (Veteran's Affairs, 2018). These specific diagnostic additions exist because children under age eleven do not seem to have the same verbal capability of expressing their feelings and thoughts surrounding the occurrence of the event (Trickey et. al., 2012). For instance, the Clinician Administered PTSD scale for DSM-V – Child/Adolescent Version (CAPS-CA-5) is used among children ages seven to eleven (Veteran's Affairs, 2018). The CAPS-CA-5 consists of a shortened questionnaire that houses more age-appropriate questions and picture response options to aid in diagnosis of post-traumatic stress disorder, and the responses are totaled with a single severity score of the disorder for the child (Veteran's Affairs, 2018). The UCLA Child/Adolescent PTSD Reaction Index can also be used among children aged seven to eleven to provide more insight on trauma history and more specific answers for the DSM-V criteria (Veteran's Affairs, 2018). This semi-structured interview allows for more freedom in response from the children, however, the individual responsible for administering it must have expertise in the disorder so that responses are properly coded (Veteran's Affairs, 2018).

Children Under Six. In children under age six, it is integral for a clinician or caregiver to focus on children's behavioral manifestations rather than their verbal iteration of the event because there is a deactivation of young children's Broca's Area (which is responsible for speech) when asked about the trauma (DeBellis & Thomas, 2003). Furthermore, because children under the age of six cannot verbally express their feelings about the event, there are additional tools that are used to aid in the diagnosis of PTSD for this age group (Perrin et. al., 2000). For instance, interviews with the parent are conducted, in addition to a more specialized version of interview with the child (Perrin et. al., 2000). Specifically, children under the age of

six are asked to have a “free discussion” of the trauma (Perrin et. al., 2000, p.281). This requires the child to first draw something about which they can tell a story, and then slowly moves into asking the child to do the same with the traumatic event, how they felt at the time, and how they are dealing with it in order to properly assess the severity of post-traumatic stress disorder (Perrin et. al., 2000).

General Symptoms of PTSD

Children appear to express the entirety of the symptoms of adult post-traumatic stress disorder (Iglesias & Iglesias, 2005). Yet, the expression of symptoms of post-traumatic stress disorder will differ in everyone that experiences a trauma (Bartels, Berliner, Holt, Jensen, Jungbluth et. al., 2019). Research completed by DeBellis & Thomas (2003) states that a “trauma is perceived through all five senses… [and trauma] is perceived as an intense fear” (p.110). Children that experience a traumatic event and develop post-traumatic stress disorder are suffering from “dysregulation of their biologic response systems” (DeBellis & Thomas, 2003, p.110). Generally, all children that have experienced a traumatic event suffer from the re-experiencing of the event (Perrin et. al., 2000). As children age, however, their re-experiencing becomes more identifiable as adult-like PTSD, causing more daily life distress as the thoughts occur more often (Perrin et. al., 2000). Specifically, irritability and hostile behaviors towards parents, siblings, and peers are present in the children aged seven to eleven (Perrin et. al., 2000). However, because some symptoms are not easily observed by a parental or caregiver figure (such as intrusive, reoccurring thoughts), the severity of the symptoms may increase because they are not being treated (Berliner et. al., 2019). For instance, Berliner et.al. (2019) found that the intrusive, reoccurring thoughts lead to behavioral issues like aggression.

Beyond interpersonal irritability and problem behavior, children who are suffering from post-traumatic stress disorder are also subject to continuous hyper-arousal and hypersensitivity (Steine et. al., 2019), which can affect their academic success. Children that have suffered a traumatic event and develop PTSD tend to express issues in school, ranging from difficulty concentrating to problems learning new skills (Perrin et. al., 2000). Jones, Trudinger, and Crawford (2004) found that children who suffer from a traumatic event and develop post-traumatic stress disorder are more likely to develop a learning disability or experience underachievement in their academics.

Symptoms Specific to Children Six and Under

Children under the age of six often express feelings of guilt or shame regarding their traumatic experience(s) (Perrin et. al., 2000). If the child is non-verbal due to the trauma of the event, physiological measures such as heart rate, skin temperature and measures of sweating can be measured when attempting to discuss the event with the child to ensure accuracy (Perrin et. al., 2000). In the youngest children, they may not have actual flashbacks of the event, but rather the trauma appears in their daily play (Perrin et. al., 2000).

Source-Specific Symptoms of PTSD

Children who experience particular sources of post-traumatic stress disorder tend to express particular symptomology. For instance, children who have Type II PTSD, or the longer-lasting version, are the most likely to have severe, continuous behavioral problems such as aggression, hostility, and tantrums (Perrin et. al., 2000). Furthermore, those that suffer from Type II PTSD are likely to have more dissociative responses to the trauma, future substance abuse issues, and self-harming behaviors (Perrin et. al., 2000). DeBellis and Thomas (2003) also found that children who have been subjected to maltreatment, and developed post-traumatic stress

disorder, went on to have substance abuse issues. Moreover, repeated childhood neglect and abuse is associated with insomnia. In a longitudinal study completed by Steine et. al. (2019), the authors found that insomnia in adulthood is linked to post-traumatic stress disorder from neglect, physical abuse, and sexual abuse (Steine et.al., 2019). In fact, the younger the child was when sexual abuse occurred, the more severe the adult's issues with insomnia (Steine et. al., 2019). This result of PTSD is particularly troublesome because sleep is vital to so many functions; the consequences of a child developing and having insomnia throughout life can result in deficiencies in memory and overall inflammation of organ systems that further compound their specific PTSD symptoms (Steine et.al, 2019).

Comorbidity and Disorders Resulting from PTSD

Not only will children who develop PTSD suffer from post-traumatic stress symptomology, but it is likely that they will also suffer from other personality and somatic disorders (Steine et. al., 2019). Research found that post-traumatic stress disorder in children and adults results in lower levels of serotonin, (DeBellis & Thomas, 2003) which leads to problems like depression. Specific symptoms may also provoke the appearance of other symptoms and further issues (Berliner et. al., 2019). For instance, if the trauma is not properly resolved, children who have post-traumatic stress disorder tend to go on to develop phobias of certain situations that are reminiscent of the trauma they experienced, such as traveling in a car or of strangers (Berliner et. al., 2019). Longitudinal studies have also shown that children who experience PTSD and are left untreated may go on to develop generalized anxiety disorder and panic disorder, although this does not typically appear until adolescence or adulthood (Perrin et. al., 2000). Similarly, McNair et.al. (2019), discovered that children in juvenile detention centers

who suffer from post-traumatic stress disorder are much more likely than those not suffering from the disorder to have comorbid depression and substance abuse issues.

Children who have been diagnosed with post-traumatic stress disorder can also develop behavioral disorders because their ability to control impulses is hindered by PTSD (Perrin et. al., 2000). For instance, it is very common that children who have post-traumatic stress disorder also get diagnosed with Attention-Deficit/Hyper-activity Disorder (ADHD) (Jones et. al., 2004). Likewise, many individuals in juvenile detention suffer post-traumatic stress disorder from multiple traumatic experiences (McNair et. al., 2019). The lack of impulse control in these individuals can lead them into a vicious cycle that only exposes them to more trauma (McNair et. al., 2019).

Causes of Post-Traumatic Stress Disorder

As previously mentioned, the primary factor for diagnosing post-traumatic stress disorder is exposure to a non-normal, life threatening event. To any individual, the definition of what is perceived as “non-normal” or “life threatening” differs. However, there are two categories of triggering events that routinely precede the development of post-traumatic stress disorder in children: traumatic events and maltreatment.

Traumatic Events

Perhaps the most obvious cause of post-traumatic stress disorder in children is the exposure to a specific traumatic event, as this is the one primary distinction of post-traumatic stress disorder in comparison to the other psychological disorders (Perrin, Smith & Yule, 2000). Often PTSD is due to non-normal life events, which are not typically expected to occur during a person’s lifetime (e.g., severe car crash). In other cases, the traumatic event may be a normal life

event occurring at an off time (e.g., death of a parent during childhood), which may induce the severity of the child's reaction.

Non-Normative Life Experiences

Perrin et al (2000) argues that a child who develops post-traumatic stress disorder is having a "normal reaction to an abnormal event" (p.278). Such events can be repeated traumas or acute, however.

Repeated Exposure. Exposure to inner-city violence can lead to post-traumatic stress disorder among children and adolescents (Mazza & Reynolds, 1999). In these circumstances, violence is defined as things that can occur within an individual's community, such as seeing someone be shot, or events like drive by shootings (Mazza & Reynolds, 1999). Mazza & Reynolds (1999) found that "exposure to violence [is] significantly related to [post-traumatic stress disorder] beyond what could be explained by depression, suicidal ideation, and the demographic factors" (p.209). This study demonstrates that children who are exposed to these specific types of situation are at more of a risk for developing post-traumatic stress disorder over and above other comorbid disorders. The same study by Mazza & Reynolds (1999) also suggested that post-traumatic stress disorder is only the first psychopathological instance, and these children will later go on to develop depression or suicidal ideation as a result of being untreated.

Single Exposure. Common single-exposure non-normative life events are events such as home fires and car crashes. Home fires are a particularly notable source of PTSD because a home fire does not only cause psychological trauma, but also the loss of a secure environment for the child and a potential to be displaced from their primary environment (Greenberg & Keane, 2001). Greenberg & Keane (2001) found that 72% of children who developed PTSD

following a house fire continued to have post-traumatic symptomology when measured 9 months after the house-fire and after receiving some sort of treatment. Greenberg & Keane (2001) also found that the older children have a higher risk of developing post-traumatic stress disorder from home fires. The authors concluded that older children exposed to home fires experienced a continued expression of post-traumatic symptoms, because of their more advanced cognitive functioning. Specifically, because of their more developed cognitive base, Greenberg & Keane (2001) theorized that older children can have flashbacks or recurring thoughts of the event more easily than younger children, promoting the development and continuation of PTSD. Greenberg & Keane (2001) also emphasized an important point when discussing the timeline for cognitive function in these children: because these children are experiencing a continuous onset of symptoms, they want caregivers to be aware that just because the adults have recovered from the situation, it does not mean that the children have also fully recovered in the same way or timeframe.

Post-traumatic stress disorder is diagnosed "relatively frequently" in children who are survivors of car accidents (Mehta & Ameratunga, 2012, p.879). To be more specific, it appears that thirty to eighty percent of children involved in a car accident go on to develop post-traumatic stress disorder (Pervanidou et. al., 2007). Even "minor crashes" will put children at risk for developing post-traumatic stress disorder due to the major stressors of the situation (Mehta & Ameratunga, 2012, p. 876). Children that experience motor vehicle accidents, and go on to experience post-traumatic stress disorder, have several symptoms that arise. Young children may be particularly likely to develop night-time enuresis, or bed-wetting, as a result from the stress of the motor vehicle accident in addition to, or in absence of, the typical behavioral problems (Eidlitz-Markus, Shuper & Amir, 2000). Eidlitz-Markus et. al. (2000) assessed five children

under the age of eight, all children who were fully potty trained, and discovered this regression in their toilet training. They concluded that because these children were so young, and did not comprehend the trauma that they experienced, that this became their primary form of expressing their distress. Due to behavioral problems that stem from anxieties and post-traumatic stress disorder, issues in school and distrust in authority figures also arise for children involved in these motor vehicle accidents (Mehta & Ameratunga, 2012).

Normative Life Experiences

There are a significant number of children that experience symptomology of post-traumatic stress disorder after the passing of a parent or close loved one (McClatchey & Vonk, 2005). The Child Bereavement Study (McClatchey & Vonk, 2005) found that out of forty-six children aged between three and six years old, almost half of the children were still suffering from serious bereavement issues at one and two years past their parent's death (McClatchey & Vonk, 2005). When a child is at such a young age, loss of a parent can lead to post-traumatic stress disorder as they are dealing with complicated bereavement processes. Complicated bereavement can be defined as "the failure to return to pre-loss levels of performance or state of well-being" (Prigerson et. al., 1993, p.23). Children who are going through this complicated bereavement process are going through similar, if not almost identical, symptoms to post-traumatic stress disorder (McClatchey & Vonk, 2005).

Children with post-traumatic stress disorder from the loss of a parent exhibit "re-experiencing through nightmares…[and/or] activities that are symbolic of the trauma" (McClatchey & Vonk, 2005, p.288). Some experts argue that the trauma experienced by the sudden loss is "in the way of the grief process" (McClatchey & Vonk, 2005, p.290). For example, these children are "unable to complete the tasks of grieving because even happy

thoughts…serve as trauma reminders [that lead] to intrusive reexperiencing" (Iglesias & Iglesias, 2005, p.184). Because of the complicated nature of a loss of a parent, there has been debate on the most effective way to treat children exhibiting both complicated bereavement and post-traumatic stress disorder. Iglesias and Iglesias (2005) suggests that hypnotherapy is the best practice for these children. Their clinical trial assisted children that fell into the category of PTSD with complicated bereavement to help them specifically get over the traumatic nature of the death so they could move on with the grieving process, and for the children in their study, it seemed to be effective (Iglesias & Iglesias, 2005).

Maltreatment

Maltreatment is the other major source of PTSD in children's lives (De Bellis & Thomas, 2003). Maltreatment can take many forms regarding a child. However, the most reported are physical abuse, neglect, and sexual abuse (National Statistics on Child Abuse, 2015). Typically, children are exposed to maltreatment at the hands of their caregivers (De Bellis & Thomas, 2003). Nearly 80% of children that suffer from maltreatment receive the abuse from their own parents (Van der Kolk, 2017). Furthermore, children exposed to any form of maltreatment have higher prevalence rates of PTSD than adults who have similar exposure events (De Bellis & Thomas, 2003).

Physical Abuse

Physical abuse can be defined as "a physical harm inflicted non-accidentally upon [a child] by [their] parents or caretaker" (Wechsler-Zimring & Kearny, 2011, p.601). Unless signs of physical abuse are evident, it is not surprising that it may go unreported. Children who are exposed to physical abuse, however, may express their distress in more behavioral manifestations of post-traumatic stress disorder. As mentioned, because children do not have the

same capabilities as adults to express their feelings, their behavior tends to speak for their feelings (Jabour, 2015). For instance, children with post-traumatic stress disorder who have been physically abused tend to express their distress by either "fight" reactions, such as reenactment of the harsh, physical behavior on peers or siblings, or by "flight" reactions, such as "avoidance" when reenacting their trauma in play or showing how they could not react at all (Van der Kolk, 2017, p.406).

Most studies demonstrating links between PTSD and abuse focus on abuse occurring within the home. However, the home setting is not the only place that physical abuse may occur, and abuse in any setting may lead to post-traumatic stress disorder. For instance, as shown by Hyman et.al. (1988), abuse may also occur in the school setting. Extreme corporal punishment can lead to post-traumatic stress disorder in children (Hyman et. al., 1988). Hyman and colleagues (1988) found that, in one instance in a small West Virginia town, children who were exposed to severe physical punishment developed psychosomatic symptoms stemming from school attendance. After it was discovered that the teacher was subjecting children to cruel punishments, she was dismissed and arrested for child abuse. However, one year later, multiple families sought psychological help for their children and reported symptomology similar to what is now considered post-traumatic stress disorder in children: hyperarousal, night terrors, regression to younger behaviors (like enuresis and thumb-sucking), and behavioral issues. It is evident that the effects of physical abuse on children, even if being used from a disciplinary standpoint, have a more severe effect on children than many caregivers realize.

Child Neglect

Neglected children are at an "increased risk of developing PTSD" (Koenen & Widom, 2009, p.570). Child neglect can be defined as "the failure of a parent to provide for a child's

basic needs and proper level of care" (Wechsler-Zimring & Kearny, 2011, p.601) and there are over 3 million cases of neglect reported in the United States yearly (Van der Kolk, 2017). Yet, interestingly, there does not seem to be a plethora of research on this cause of post-traumatic stress disorder on children. Research that does exist shows that neglect among children tends to be comorbid with other forms of abuse, such as physical or sexual, all of which can cause post-traumatic stress disorder in a child (Wechsler-Zimring & Kearny, 2011). Considering these facts, it is important to stress the severity of child neglect, because just neglect alone is one of the most common forms of maltreatment of a child (Wechsler-Zimring & Kearny, 2011).

As with sexual abuse, in many of the cases, the neglect is coming from the child's caregiver (Van der Kolk, 2017). Additionally, when the child suffers from an insecure attachment to their caregiver due to inconsistencies in care from the caregiver like neglect, it will ultimately influence their relationships and ability to communicate their distress, forcing them to try and "self-regulate" their emotions (Van der Kolk, 2017, p.404). This attempt at self-regulation can express itself in the form of post-traumatic stress disorder, with symptoms such as depersonalization, derealization, flashbacks of the trauma, and behavioral issues (Van der Kolk, 2017). An interesting difference to note regarding age, is that when children are adolescents, neglect may lead to juvenile delinquency issues, such as going on to commit violent crimes and being arrested (Van der Kolk, 2017). Adolescents who end up in juvenile detention centers are more likely to have post-traumatic stress disorder stemming from neglect in their youth (as well as physical or sexual abuse; McNair et. al., 2019). To further extend on the point of neglect and a secure home setting, homeless youth are also at a higher risk for developing post-traumatic stress disorder; approximately one-third of homeless youth show post-traumatic symptomology (Aratani, 2009).

Sexual Abuse

Rowan & Foy (1993) discovered that "children who experience more sexual abuse are more likely [than children suffering other types of abuse] to develop PTSD" (p.9). Sexual abuse is generally defined as, "[a child] being used for the sexual stimulation of (an) adult" (Wechsler-Zimring & Kearny, 2011, p.601). A more specific definition involves "a complex constellation of experiences that involve an adult or older child using a child for sexual gratification and can include, but is not limited to, rape, unwanted touching, threatened sexual violence, exhibitionism, and use of children in pornography or sex work" (McTavish et. al., 2019, p.196). In many cases, though, the disclosure of the abuse does not occur until these children are at a much later age, and as a result they are diagnosed with post-traumatic stress disorder with delayed onset (Rowan & Foy, 1993). PTSD with delayed onset occurs when the child is not diagnosed, or symptoms do not show until at least six months after the trauma has occurred (Veteran's Affairs, 2018). It is likely that these children are diagnosed with delayed onset because they did not disclose their experience to anyone until well past the initial assessment period of one-month (Rowan & Foy, 1993).

In the past, it has been argued that child sexual abuse is not and should not be considered an "overwhelming trauma", since it does not always have physical implications (Rowan & Foy, 1993, p.17). Yet, there are severe emotional repercussions of sexual abuse, such as reliving the trauma and avoidance of stimuli, that prove it falls into the category of a traumatic event, one which can cause post-traumatic stress disorder. It seems that the stigma behind child sexual abuse and a child's ability to disclose that it occurred is at the root of the issue when trying to diagnose a sexually abused child with post-traumatic stress disorder. For instance, because of the frequency of victim blaming, a child may not feel comfortable disclosing the event because the

increased guilt from PTSD may make them feel like it is their fault and not that something wrong happened to them (Walker et. al., 2004). Yet, PTSD still arises when a child does not, or if at a young age cannot, disclose that this trauma occurred. In fact, the ability to disclose what occurred and have it validated and responded to in a positive way is integral to avoiding post-traumatic stress disorder following sexual abuse (McTavish et. al., 2019).

There are also gender differences in the prevalence and symptoms of PTSD following child sexual abuse. Generally, the victims of child sexual abuse and the resulting development of post-traumatic stress disorder are females (McTavish et al., 2019). In fact, girls are two to six times more likely to develop post-traumatic stress disorder than boys when the source of the disorder is from sexual abuse (Walker et al., 2004). Furthermore, research shows that boys are less likely to admit that sexual abuse occurred to them (Walker et. al., 2004). Young boys may not even understand that what is happening to them is sexual abuse due to the "socialization processes" when it comes to discussions of sexual intercourse (Walker et. al., 2004, p. 113). For instance, gender roles may make a young boy feel like this is what is supposed to happen at their age, rather than it being inappropriate. Boys and girls also seem to display different symptoms of post-traumatic stress disorder after being exposed to sexual abuse. For example, young girls tend to display internalizing and ruminative traits, while boys exhibit externally, such as through aggressive behaviors (Walker et. al., 2004).

Summary of Causes

Sexual abuse seems to be the most commonly reported and researched source of post-traumatic stress disorder in children. Research on trauma-related sources of PTSD is still limited since many children do not or cannot disclose what occurred to them, however. Other events may also be triggers of PTSD beyond the most common sources that were just discussed. Indeed,

many cases of maltreatment or traumatic events are simply not reported, and therefore not considered when trying to narrow down the range of events that cause post-traumatic stress disorder within children. Many caregivers may also not comprehend the extent of damage an event causes a child, as children are not yet able to appropriately express themselves and their feelings at a young age (Hyman et. al.,1988).

Moderating Factors

Children can differ in their likelihood of developing PTSD following trauma or maltreatment. There are three main factors that moderate a child's severity of development of post-traumatic stress disorder: their demographics, their cognitive and behavioral characteristics, and the amount of social support they receive.

Demographics

Demographic characteristics predict an individual's severity of PTSD following trauma, but their effects are generally small to moderate. Low SES and being Black are associated with small increases in the prevalence of PTSD following trauma (Trickey et al., 2012). Caucasian, Hispanic, and African American children have the highest reports of child maltreatment (Jabour, 2015), which can result in more frequent reports post-traumatic stress disorder (De Bellis & Thomas, 2003). Additionally, children of low socioeconomic status are more likely to have repeated exposure to trauma and abuse (Jabour, 2015) that may lead to post-traumatic stress disorder. The overall levels of PTSD among these groups may be higher, however, than their individual susceptibility would promote. Likewise, female children seem to have higher, and more frequent reports of post-traumatic stress disorder in general (Contractor et. al., 2013). It appears that female children are also more likely to develop PTSD from trauma, especially when the trauma is unintentional (e.g., car accident) or occurs at older ages (Trickey et al., 2012).

Trickey et. al.'s (2012) meta-analysis of childhood PTSD following trauma shows that age is not an important risk factor for development of the disorder overall. However, Trickey and associates (2012) did find that age can moderate a few aspects of the type of trauma to alter prevalence of PTSD. Younger children are more likely than older children to develop PTSD from intended (e.g., war, different types of abuse) than unintended (e.g., car accident, home fires) traumas and from group traumas (experienced among more than one child, such as a school shooting or natural disasters) than individual trauma. This is because older children may have different cognitive styles and ways of reacting to the trauma in comparison to younger children and may be better at processing shared trauma (Trickey et. al., 2012). Importantly, the youngest age child in any study part of Trickey et al.'s (2012) metanalysis was five years old, with most studies starting at age 6 or higher. Research by Jabour (2015) shows that most cases of abuse occur when the child is age five and under, however, thus the lack of age differences in susceptibility to PTSD may be due to not including children from the youngest age groups.

Cognitive and Behavioral Characteristics

A child's existing cognitive and behavioral characteristics prior to a traumatic experience affect their likelihood of developing post-traumatic stress disorder after the event. Specifically, if a child has existing issues with emotional regulation or psychopathology, they will be more likely to develop post-traumatic stress disorder after experiencing a traumatic event (Keppel-Benson & Ollendick, 1993).

Subjective experiences of the trauma and behaviors following the trauma also affect whether a child is likely to develop PTSD. For instance, it is believed that if a child feels that there is a recurring threat and already has sensitivities to strains of life, they may be more likely to develop post-traumatic stress disorder (Trickey et. al., 2012). Trickey and associates' meta-

analysis found that these two pre-existing components were significant influencing factors. Additionally, if the child has a family history of developing anxiety or stress disorders, they may be more likely to develop PTSD after a traumatic event (Trickey et. al., 2012). However, it is important to note that these factors only have a small effect (Trickey et. al., 2012). As far as comorbid disorders, Trickey et. al. (2012) found that if a child has existing depression, anxiety or any other psychological disorder, it is more likely that a child will go on to develop PTSD after experiencing a traumatic event.

After the trauma occurs, there are also factors that can influence the development of post-traumatic stress disorder in children. As previously stated, when the child has a pre-existing psychological condition, it can influence the development of PTSD. Specifically, this is because the child will already have some sort of biased perception of reality that will shape how they view their trauma after it has occurred (Trickey et. al., 2012). Additionally, if there is any sort of blame or guilt placed upon the child, it makes a significant difference in the severity of the disorder (Trickey et. al., 2012). This guilt or blame may also be influenced by having a poor environment before and after the trauma has occurred, and improper parental response is occurring (Trickey et. al., 2012).

Social Support

Social support can both affect the initial development of PTSD and its progression. Low social support and poor family functioning are risk factors for developing post-traumatic stress disorder following trauma (Trickey et. al., 2012). Social support for children with post-traumatic stress disorder has been defined as “assistance provided to individuals who are coping with stressful events” (Hyman et. al., 2003, p. 295). When a child receives adequate social support when navigating their traumatic experience, social support “acts as a buffer to high levels of

stress" (Hyman, Gold, and Cott, 2003, p.295). Additionally, when the child receives assistance in building their self-esteem from their teachers, peers, or caregivers, it is one of the most effective measures of preventing post-traumatic stress disorder or reducing its severity (Hyman et. al., 2003). Hyman et al. (2003) found that children with post-traumatic stress disorder stemming from sexual abuse also can return to more normalized levels of functioning when social support is present. When children socialize with teachers, peers, and their parents or caregivers, the severity of their reaction is diminished because they are actively re-evaluating the experience (Hyman et. al., 2003).

Teachers

Teachers can aid in educating children with post-traumatic stress disorder on how to promote their physical and mental health, as well as how to know how and when to ask for help (Alat, 2002). In a school setting, teachers are important in providing a different, neutral type of social support to children with post-traumatic stress disorder in comparison to caregivers and friends; one that allows them to seek the support without a confounding relationship (Alat, 2002). Because symptoms of post-traumatic stress disorder may express themselves in "low academic performance [and] learning problems", a teacher may be one of the first to identify the issues and serve as a forefront for social support (Alat, 2002, p. 4). When a child is suffering from post-traumatic stress disorder, the teacher can also provide a sense of consistency and safety in their environment (Alat, 2002). Regularity in the school setting, such as specific activities at certain times, the responsiveness from the teacher, and positive feedback can aid in this feeling of security (Alat, 2002). Most importantly, however, the teacher can communicate the success, or lack thereof, of a child's progress to the parent or caregiver, so that social support is consistently provided (Alat, 2002).

Peers

For all children who suffer from post-traumatic stress disorder, social support from peers can aid in lessening the internalizing symptoms experiencing and externalizing symptoms of PTSD (Yearwood et al., 2019). As children begin to attend school, the role of peer relationships becomes increasingly more important as their peers are whom they begin to confide in the most (Yearwood et. al., 2019). When a child experiences a traumatic event, the presence of peers in their life can aid in sustaining a feeling of positivity and peer support can increase feelings of self-esteem (Yearwood et. al., 2019). Further, Yearwood et. al., (2019) found that "active involvement in healthy peer relationships could mitigate the influence of [post-traumatic stress disorder symptoms]" (p. 20). Conversely, adverse peer support (such as bullying), can increase the prevalence of the post-traumatic symptomology (Yearwood et. al., 2019). However, for children who have post-traumatic stress disorder stemming from sexual abuse, it does not appear that disclosure to peers and encouragement from them help alleviate symptoms (Hyman et. al., 2003).

Parents and Caregivers

The most important factor in determining the outcome of a child's development of post-traumatic stress disorder is the parent's behavior towards the child (Hyman et. al, 2003). If the parent or caregiver is experiencing their own distress as a result of the child's development of post-traumatic stress disorder, it can drastically increase the likelihood of a child having post-traumatic stress disorder (Valentino et. al., 2010). After a child experiences a traumatic event, their primary caregivers' response can also determine the rate at which the child's symptomology lessens (Valentino et. al., 2010). For instance, if the parent or caregiver responds to the child's diagnosis with a negative attitude or belittling of the child's symptoms, it can result

in more severe symptomology such as continued behavioral problems of the child and negative self-talk (Valentino et. al., 2010). However, if the parent is "supportive [or] engaged", it strongly relates to the child having better adjustment to the symptoms of post-traumatic stress disorder (Valentino, Berkowitz & Stover, 2010, p. 405). Specifically, parents who gave support unconditionally to their children who were sexually abused and suffered from post-traumatic stress disorder reported their children to have fewer behavioral problems, higher levels of self-esteem, as well as higher feeling of self-worth (Hyman et. al., 2003). Interestingly, though, the child's perception that they have people that they can confide in about their experience is more important than the true accessibility of those who will provide support (Hyman et. al., 2003).

Methods of Treatment

There are multiple methods for treating PTSD in children, including medication and various types of therapy. In any practice to treat children with post-traumatic stress disorder, it is important to teach the child proactive coping techniques, rather than allowing internalizing symptoms to reoccur (Dyregov & Yule, 2006). The most agreed upon goal of treatment, though, is for the child to create their own narrative of the event (Neuner et al., 2008). Furthermore, the earlier treatment is put into action, the better the outcome of expression of symptoms (Dyregov & Yule, 2006).

Medication

A range of medications are used to treat post-traumatic stress disorder, including antidepressants, antipsychotics, and anticonvulsants (Dyregov & Yule, 2006). Considering that post-traumatic stress disorder in children causes hyperarousal, many psychiatrists think that an adrenergic-blocking substance is most effective (Perrin, Smith & Yule, 2000). For instance, the medication Propranolol is effective in reducing symptoms in children who are sexually abused

and suffering from post-traumatic stress disorder (Perrin, 2004). Cohen, Deblinger, Mannarino, & Steer (2004), found the medication Sertraline is also effective in children with post-traumatic stress disorder. Typically, if medication is issued, it is only to be supplementary to a therapeutic treatment (Perrin et. al., 2000). However, the influence of medication on children is debated due to serious side effects outweighing the benefits of medication (Dyregov & Yule, 2006). Furthermore, Perrin et. al. (2000) suggested that medication alone is not adequate to treat children with post-traumatic stress disorder.

Cognitive Behavioral Therapy (CBT)

Whether completed with a caregiver and child, or solely with the child, the most effective and preferred treatment for children with post-traumatic stress disorder is cognitive behavioral therapy (Dyregov & Yule, 2006; Perrin et. al., 2000). In fact, many studies have shown that children with PTSD who are treated with cognitive behavioral therapy have higher rates of improvement in the expression of symptoms than children treated with other methods (Neuner et. al., 2008). For instance, Perrin et al., (2000) studied children that were sexually abused and suffering from post-traumatic stress disorder. They discovered that Cognitive Behavioral Therapy improved all symptoms of post-traumatic stress disorder, with none of the children qualifying for PTSD after treatment, whereas the rate of recovery was not nearly as high for children undergoing traditional talk therapy.

Cognitive Behavioral Therapy is also the most documented and researched method of treatment for children suffering from post-traumatic stress disorder (Dyregov & Yule, 2006). For children who have post-traumatic stress disorder that are treated through CBT, the main goal is to be able to enhance the child's feeling of self-control over the intrusive thoughts or recurrence of the event (Perrin et. al., 2000). Within CBT, there are four main aspects of treatment:

"education/goal setting, coping skill development, exposure, and termination and relapse prevention" (Perrin et. al., 2000, p.284). When CBT is focused solely on the child, it is imperative that there is a supportive relationship with the therapist developed first before engaging in the therapy techniques (Dyregov & Yule, 2006).

As mentioned, a primary goal of CBT is being able to teach the child more effective coping mechanisms (Perrin et. al., 2000). While practicing coping mechanisms, the use of a device called SUDS (The Subjective Units of Distress Scale) is applied to determine the severity of response to a triggering event (Perrin et. al., 2000). If the parents of young children decide that this type of exposure involved cognitive behavioral therapy is best, a pictorial representation of the SUDS scale is used to help best identify feelings about potential triggering events for those children that are not able to articulate their feelings well (Perrin et. al., 2000). When the children have mastered identifying their triggers to the event, they are able to then move on to "exposure" which is the reimagining of the event to the point of desensitization (Perrin et. al., 2000, p.283).

The final phase of cognitive behavioral therapy includes reorienting the child to activities they enjoy, what they hope for in the future, and shifting the focus back to school activities (Perrin et. al., 2000). When parents are included in the therapy with the child, it improves the child's externalizing, emotional outburst symptoms, versus when they are not involved (Perrin et. al., 2000).

Eye Movement Desensitization and Reprocessing (EMDR)

Eye Movement Desensitization and Reprocessing derives from a practice used on adults with post-traumatic stress disorder and it is starting to be applied to children (Dyregov & Yule, 2006). Eye Movement Desensitization and Reprocessing (EMDR) involves having the participant reimagine the trauma while shifting their eyes between two fixed points (Perrin et. al.,

2000). The treatment with EMDR continues until the child can recall the memory without fear or hyperarousal to the event (Perrin et. al., 2000). For children that participate in EMDR, there is a significant decrease in symptomology of post-traumatic stress disorder (Dyregov & Yule, 2006). EMDR works by exposing the child to various stimuli that change the negative storage of the traumatic event to a more positive storage, by associating the triggering stimuli with more pleasant thoughts (Shapiro, 2014). The main argument for the use of EMDR in comparison to Cognitive Behavioral Therapy for children who are experiencing post-traumatic stress disorder is that symptoms seem to improve in fewer sessions of EMDR than Cognitive Behavioral Therapy (Dyregov & Yule, 2006). However, many agree that more research is needed to understand the long-term benefits (Shapiro, 2014).

Non-Directive Play Therapy

Research suggests that for the youngest children suffering from post-traumatic stress disorder, it is imperative to involve play into the treatment process (Ryan & Needham, 2001). Play allows the child to re-experience the trauma in a way that involves all senses, rather than in just a cognitive manner (Ryan & Needham, 2001). However, if the child is not in control of what is occurring during the play, and it is overly directed by another individual, such as the caregiver or therapist, it is possible that it can cause more distress in addition to an increase in the amount of symptoms (Ryan & Needham, 2001). As such, non-directive play therapy is preferred as it makes the child feel more comfortable in sharing their traumatic experiences (Ryan & Needham, 2001). To ensure the comfort of the child, non-directive play therapy involves the therapist practicing the treatment in the child's home to further implement the child's sense of security during the retelling of their trauma (Ryan & Needham, 2001). Additionally, because treatment is occurring in a familiar environment for the child, they are less likely to become hyper-aroused or

overwhelmed by a new place which would only impede the healing process (Ryan & Needham, 2001). The most important concept of this type of therapy is that the child feels safe in the environment leading to ease in disclosing to the therapist (Ryan & Needham, 2001). Typically, treatment consists of eight one-hour sessions, over the course of two months, and a follow-up session six-months after the final treatment to assess the success of therapy (Ryan & Needham, 2001).

Trauma Focused Cognitive Behavioral Therapy (TF-CBT)

In a study of pre-school aged children suffering from post-traumatic stress disorder, they discovered that the use of TF-CBT is more effective in treating symptomology over non-directive play therapy (Perrin et. al., 2000). The primary difference in trauma-focused cognitive behavioral therapy, compared to traditional CBT, is that the child's emotions and perspective of the trauma are worked through with the caregiver, and communication strategies between caregiver and child are practiced (Tebbett et. al., 2018). Unlike traditional CBT, TF-CBT therefore requires that the caregiver and child are present during therapy (Tebbett et. al., 2018). Currently, TF-CBT can be used for children aged three and older (Cohen et.al., 2008) and this form of treatment can be practiced in a clinical setting or in the child's home (Cohen et.al., 2008). TF-CBT was initially created for children who are sexually abused suffering from post-traumatic stress disorder, but its use has been extended to other sources of PTSD in children (Tebbett et. al., 2018). Considering that the parent is involved in the child's treatment, TF-CBT has been shown improve the child's symptoms, in addition to improving the worries of the child's caregivers (Cohen et. al., 2008).

Like traditional CBT, TF-CBT is also completed in several stages (Tebbett et. al., 2018), and it is followed by the PRACTICE method (Cohen et. al., 2008). PRACTICE involves

teaching the caregivers the proper skills to aid the child, teaching the child regulatory strategies for the child's affect, teaching the child how to restructure their thought processes, developing a narrative of their experience, putting the child through short-lived re-experiencing of the trauma, conducting sessions with the parents and child, and teaching safety precautions to the child to avoid another traumatic experience (Cohen et. al., 2008). Additionally, like cognitive behavioral writing and narrative exposure therapy, TF-CBT involves the child drawing or writing about how the trauma occurred (Van der Oord, Lucassen, Van Emmerik, & Emmelkamp, 2010). The importance of trauma-focused cognitive behavioral therapy is stressed because the caregiver's dedication to their child's treatment is shown to be a direct predictor of children with post-traumatic stress disorder successfully healing through this treatment practice (Tebbett, Brown, & Chaplin, 2018). Positive results of trauma-focused cognitive behavioral therapy have maintained at six and twelve month follow ups (Perrin et. al., 2000).

Cognitive Behavioral Writing Therapy or Narrative Exposure Therapy

In comparison to traditional Cognitive Behavioral Therapy, Cognitive Behavioral Writing Therapy or Narrative Exposure Therapy is seen to be more advantageous because the disclosure of trauma is done in an emotionally disconnected way (Van der Oord et. al., 2010). Narrative exposure therapy involves writing out the trauma on a computer in order to process the feelings of the traumatic event (Dyregov & Yule, 2006). In many studies, this process of this emotional upheaval is beneficial for adults, and as such, there are practices beginning to be applied to children (Dyregov & Yule, 2006). For those that are younger, or unable to physically write their storyline, the child discloses to the therapist their recounting of the event and it is written for them (Van der Oord et. al., 2010). Even children between the ages of three and five years old

have the capabilities of dictating the traumatic event, particularly if they can instead draw some aspects out and then describe them (Neuner et. al., 2008).

Regardless of the age of the child, the therapist must take note to be aware of the child's arousal states and to take care in always ending the session with the child in a positive mindset due to the constant discussion of the traumatic event (Neuner et. al., 2008). The main differences in this form of treatment in comparison to traditional Cognitive Behavioral Therapy are that the child engages in this treatment alone, without a parent or caregiver, and there is always a written disclosure of the child's interpretation of the trauma (Van der Oord et. al., 2010). Yet, although the caregiver is not present, the narrative that they produce can later be shared with parents or caregivers to help them better understand the child's thought processes (Van der Oord et. al., 2010). For those engaged in this form of therapy, the goal is to create a cohesive remembrance of the event from the fragments to encourage desensitization to arousing stimuli regarding the event (Van der Oord et. al., 2010). Van der Oord et. al. (2010) analyzed children eight and older with post-traumatic stress disorder and found this form of treatment results in a decrease of post-traumatic symptomology that maintained after a six-month period.

Discussion

This analysis of the literature shows the extent to which children who are under six years old with post-traumatic stress disorder are underrepresented in terms of properly assessing symptoms, identifying all sources, and applicable treatments. Most of the literature that was included in this analysis was for children between the ages of 6 to 17 years, or only specifies age groups by terming their study with "adolescents" or "school-aged children". Likewise, the literature rarely considers the existing research on adults or older children to make comparisons to children younger than six. When searching post-traumatic stress disorder in children, most

frequently there are results of war-torn children, victims of source-specific natural disasters that affect more than one individual, and research that focuses primarily on adults. A further emerging theme is the frequency of which female children are diagnosed with post-traumatic stress disorder. It seems that young girls are more often the ones diagnosed with post-traumatic stress disorder over young boys.

Less Explored Areas and Suggested Future Directions for Research

Assessing Symptoms

The primary issue with assessing symptomology in children under six years old with PTSD is that the manifestation is so like general behavioral problems. For example, in a child under six years old, their primary manifestations may be acting out or having temper tantrums (Perrin et. al., 2000). Additionally, as previously mentioned, a successful way of detecting post-traumatic symptomology in young children is physiologically through their heart rate or sweating when they are reexperiencing the event (Perrin et. al., 2000). However, the issue of practicality in this instance is overlooked. A parent would not be able to naturally measure the heart rate or sweat of their child unless they were in a laboratory or office setting. Therefore, it is imperative that other measures should be devised to aid parents in understanding and identifying if their child could be suffering from post-traumatic stress disorder, so they know when to take their child to a professional for a proper assessment.

Regarding physiological assessments, there seems to be a lack of research utilizing these measures in children that have post-traumatic stress disorder. Not only do children with PTSD suffer from recurring thoughts, feelings of guilt, and behavioral issues, there are issues that extend to brain and bodily functions, not just behaviorally like that of personality. De Bellis et. al. (2003) found that children who are diagnosed with post-traumatic stress disorder show an

increase in cortisol levels, which over time can cause increases in heart rate and blood pressure, leading to other potentially harmful effects later in life. Considering that younger children may not have the ability to verbally express their experiences or feelings, and physiological functioning is a sure-fire way to assess PTSD in children (Perrin et. al., 2000), more research needs to be conducted on how to best make use of these physiological assessments to determine the severity of PTSD in these younger children.

It is also important to consider that children tend to have more delayed and continued onset of post-traumatic stress disorder than adults (Greenberg & Keane, 2001). This means it is important to implement assessments of PTSD more commonly and for longer periods following non-normative life events. Because of delayed onset, many children who are experience these types of life events go unassessed for PTSD at initial check-ups and follow-up visits (Greenberg & Keane, 2001). Specifically, for children who are exposed to home fires, it would be beneficial to have them screened for post-traumatic symptoms immediately after the event, and several months following if behavioral issues are present (Greenberg & Keane, 2001). Similarly, children who experience motor vehicle accidents are typically unassessed for post-traumatic stress disorder, even though car accidents are a known cause for PTSD in children (Mehta & Ameratunga, 2012). It is believed that many cases of post-traumatic stress disorder in children may go undiagnosed because clinicians are not actively looking for this diagnosis when they arrive in the hospital after the accident (Mehta & Ameratunga, 2012). Clearly, examining these children for this atypical reaction should be included in a check-up after the event.

Sources

The literature among WEIRD countries for children with post-traumatic stress disorder is lacking in diversity of the sources of post-traumatic stress disorder. Although physical abuse,

neglect, and sexual abuse are the most reported upon (National Statistics on Child Abuse, 2015), they are not the only causes of post-traumatic stress disorder in children.

As briefly touched on, physical abuse is reported, but not as often examined as the other sources of PTSD in children. This may be because children younger than six do not realize that what is occurring to them from their caregivers is wrong or because they do not have means to report it to someone other than their caregiver, as they are not involved in formal schooling with regular access to a teacher. Parents are not going to report their own abuse of their child to the authorities; so if physical abuse is reported, it is often from a teacher within the school setting or from a witness to the violence (Wechsler-Zimring & Kearny, 2011).

Sex-trafficking is almost never discussed as a source of PTSD in young children but can cause post-traumatic stress disorder in older children and teens (Ottisova et. al., 2018). Ottisova, Smith, & Oram (2018) examined children who were sex-trafficked who went on to develop post-traumatic stress disorder. They found that because children have multiple traumatic experiences while being sex-trafficked (such as physical and sexual abuse), they are "at high risk of developing [post-traumatic stress disorder]" (Ottisova et. al., 2018). While sex trafficking primarily affects children between 10-14, it can also occur in younger children (Ark of Hope for Children, 2019).

Poverty-related issues that cause neglect also deserve more research as nearly 21% of children are currently living in situations that are below the poverty level threshold (National Center for Children in Poverty [NCCP], 2019). As previously discussed, poverty puts children more at risk for circumstances that cause post-traumatic stress disorder (e.g., neglect and abuse; McNair et. al., 2019) and makes children more susceptible to developing PTSD after such trauma (Trickey et al., 2012). The repercussions of childhood neglect can also extend further

than post-traumatic stress disorder. Risks of poverty can include social neglect, improper care, future juvenile detention, and parental attachment issues for children (McNair et. al., 2019). Because there are so many risks of poverty that can result in post-traumatic stress disorder as well as the high prevalence of neglect among children and the outcomes that arise from it, it is imperative for future studies to assess this as a risk factor for post-traumatic stress disorder research with children.

Additionally, verbal abuse may be an unidentified source of post-traumatic stress disorder in children and research in this specific area of maltreatment (without comorbid abuse) is highly limited. It is possible that verbal abuse alone is not traumatic enough to produce PTSD symptoms in most children, but it is also possible that researchers and clinicians have merely failed to recognize its potential as a sole source of PTSD. Like physical abuse, it could go under-reported because many parents may not realize that they are verbally abusing their children, or they are not going to report themselves. Moreover, in a study by Hyman, Zelikoff, & Clarke (1988), they considered the impact of verbal abuse among children within a school-aged setting. Rather than this abuse stemming from the child's primary caregivers, it was delivered by their teachers. Hyman and colleagues (1988) argued that not all events must be considered "out of the norm" to cause post-traumatic stress disorder in children, which is why they considered the school setting. They believe that a majority of PTSD in children who have suffered from verbal abuse is found in schools that are have severe disciplinary rules in practice (Hyman et. al.,1988). While these children did not express the symptoms of PTSD after verbal abuse was occurring, they appeared to internalize their feelings and they did not resurface again until there was an additional outward event that triggered the memory of the event occurring to them (Hyman et. al.,1988). Clearly, verbal abuse stemming from a school or home setting needs further research.

Treatments

Although it is not a direct treatment, social support does influence the expression of symptoms of post-traumatic stress disorder in children (Hyman et. al., 2003). However, the research on the influence of it is lackluster. Most of the research on social support with children suffering from post-traumatic stress disorder tends to be for those who suffered from emotional abuse, where the literature is also lacking (Hyman et. al.,2003). However, future research should consider the best methods for family members, peers, and teachers to provide quality social support in all cases of childhood PTSD. Even teachers may benefit from learning prosocial therapy strategies, such as non-directive play, as a form of social support (Alat, 2002). As Hyman et. al. (2003) found, poor social support can negatively impact the progression of recovery from post-traumatic stress disorder, and as such the best methods must be researched further.

Furthermore, because of the current rise in technology, including improvements in text-to-speech programs, more research should be completed on how the benefits of cognitive behavioral writing therapy can be applied to children under six years old. Non-directive play therapy is most often used for children under six years old, but it is not the most effective method of treatment (Ryan & Needham, 2001). As mentioned, cognitive behavioral writing therapy is seen as one of the most effective methods for treating post-traumatic stress disorder, in children or adults (Van der Oord et. al., 2010). The trauma resolved through emotional disconnect and may serve to better help the child as they are not in complete control of their thoughts or emotions at that age.

Cognitive behavioral writing therapy is always conducted with a computer during treatment sessions, in comparison to traditional cognitive behavioral therapy or trauma-focused

cognitive behavioral therapy where it is solely a narration of the events to the therapist (Van der Oord, et. al., 2010). Because this computer aided technology is seen to be more advantageous in comparison to traditional therapy in cases of children with PTSD, more research should be completed in this area (Van der Oord et. al., 2010). Alternatively, for the child that is unable to write themselves, and when computer-aided text-to-speech is not viable, the act of emotional upheaval and recounting their story to a trusted adult may be advantageous. Considering that using CBWT in young children requires an adult to write their narrative for them, this process could be coupled with the benefits of social support if they are disclosing the event to their trusted parent or caregiver. This coupling of therapies is something that should be considered in future research to determine if it is, in fact, valuable in reducing the internalizing and externalizing symptoms.

Final Thoughts

Post-traumatic stress disorder in children can be caused by many different types of life events. Although there are certain factors that may put specific individuals at risk, it is not a disorder that solely impacts one group or another. With so many cases of maltreatment being diagnosed yearly, we can expect to see a rise in the number of children who develop this order over time. Although there is not a profound mention of certain forms of maltreatment in the literature (like physical, emotional, and verbal abuse), we cannot deny that it is not occurring. Many cases of maltreatment may not be reported to authorities, and therefore research in those areas would be limited. Better identifying the symptoms and risk factors of PTSD in children will provide aid to children suffering from the disorder and their caregivers. Furthermore, when the types of treatment that best serve young children, including those under age six, are identified, clinicians and caregivers will better understand the methods that may work best for

their child. It is also important to note in future research the confounding role of social relationships for children who have post-traumatic stress disorder, as the better social relationships a child has, the better their outcome with PTSD symptoms (Hyman et. al., 2003). Therefore, it is integral to identify the way that social relationships can best aid children in healing and helping them recognize that this is not a typical way of dealing with stress.

In conclusion, there are several areas that deserve more research regarding children and post-traumatic stress disorder. With 5.5 million children a year in the United States suffering from abuse and neglect, and numbers on the rise (Veteran's Affairs, 2018), it is likely that we will see a rise in the number of diagnoses of post-traumatic stress disorder in children, particularly those under six years old. Furthermore, longitudinal studies of children who have post-traumatic stress disorder have shown that their severity of symptoms is in direct relation to how much social support they receive: the lower the social support, the more severe the symptomology (Steine et. al., 2019). It is imperative that more research is done on properly assessing the symptoms, identification of the sources, and finding the most applicable treatments to children under six years old because of the long-lasting repercussions and that it can occur at such early ages.

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