

# Impact of an Integrated EMDR Treatment Program for Children and Youth Exposed to Potentially Traumatic Events: The Village Collaborative Trauma Center

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Exposure to adverse events during childhood and adolescence is associated with problematic outcomes across the life span, including the development of posttraumatic stress disorder (PTSD). A growing body of research examining the effectiveness of eye movement desensitization and reprocessing (EMDR) therapy in treating PTSD among young people has yielded mixed findings. More work is needed that elucidates whether EMDR is linked to positive and sustained reductions in symptoms among youth who experience potentially traumatic events. For this open trial, we analyzed data from 143 youth ( $M_{\text{age}} = 12.9$ , standard deviation [ $SD$ ] = 3.4, Range = 6–18) who received outpatient behavioral health clinic services, including EMDR. We assessed whether the number of types of exposure to family-related and non-family-related traumatic events, as well as differences in severity of PTSD symptomatology, was associated with changes in internalizing and externalizing problem behaviors from intake to 6 months. Results indicated that youth with (a) fewer exposures to non-family-related potentially traumatic events and (b) more severe PTSD symptoms, showed greater improvements in externalizing problem behaviors. We discuss limitations of the present study and implications for future research.

**Keywords:** eye movement desensitization and reprocessing (EMDR) therapy; community mental health; low-resource communities; child and youth outcomes

**O**n average, approximately five million children are exposed to a potentially traumatic event (PTE) each year in the United States and, by

the age of 18, roughly two-thirds of youth have experienced such an event (Dorsey et al., 2017; Perry, 2014). These events include exposure to poverty, natural

disaster, racism/discrimination, childhood neglect, and psychological, physical, and sexual abuse (The National Child Traumatic Stress Network, 2017; Wade et al., 2014). An ample body of research has consistently demonstrated links between exposure to PTEs during childhood and adolescence and adverse psychological and behavioral outcomes across the life span, including the development of posttraumatic stress disorder (PTSD; Greeson et al., 2014; Moreno-Alcázar et al., 2017). PTSD affects roughly 7% of girls and 2% of boys who have experienced trauma and is characterized by symptoms including distressing flashbacks or memories of the traumatic event, sleep disturbances, depression, problems in school, regressive behaviors, and increased irritability (e.g., Gilman et al., 2015; Stanford Children's Health, 2017). These severe negative outcomes underscore the critical need for treatments for children that are effective and accessible (Beer, 2018).

## EMDR Therapy

Research examining the effectiveness of psychosocial treatments for children affected by PTSD, such as trauma-focused cognitive behavioral therapy (TF-CBT) and prolonged exposure therapy, has yielded mixed findings (Brown et al., 2017; Diehle et al., 2015; Dorsey et al., 2017; Morina et al., 2016). Eye movement desensitization and reprocessing (EMDR) is an individual therapeutic approach that was originally developed in the late 1980s for treating adults with PTSD symptoms and is increasingly being used to treat PTSD in children and adolescents (Moreno-Alcázar et al. 2017; Racco & Vis, 2015; Ramsdell et al., 2015; Shapiro, 2014). This intervention aims to promote the integration of sensory, cognitive, and affective components of a traumatic memory with adaptive information (Shapiro, 2017). The therapist engages the participant in short sets of dual attention (eye movement, alternating bilateral taps, or ear tones) while asking the participant to simultaneously focus on a traumatic memory. The process continues until the client reports no distress associated with the event (Shapiro, 2017). EMDR is informed by the adaptive information processing model; it is hypothesized that the eye movements in conjunction with exposure to a traumatic memory will facilitate access to healthy emotional networks and linkages among unprocessed memories of traumatic experiences and healthy processed memories (Ramsdell et al., 2015).

A growing body of research suggests that EMDR therapy represents a promising treatment for children and adolescents impacted by PTSD (see reviews by

Beer, 2018; Fleming, 2012). Moreno-Alcázar and colleagues (2017) conducted a meta-analysis and found that EMDR was more effective in reducing posttraumatic and anxiety symptoms in children and adolescents when compared to waitlist or placebo conditions and was as effective as CBT. In a single-blind randomized trial, De Roos et al. (2017) found that youth in both EMDR and cognitive behavior writing therapy no longer met diagnostic criteria for PTSD following the intervention, and these gains were sustained at follow-up. Jaberghaderi and colleagues (2004) found that CBT and EMDR each produced large effect sizes on posttraumatic symptom outcomes for a sample of girls who had been sexually abused, and concluded that EMDR was more efficient, as fewer sessions were needed.

There are several studies in which EMDR therapy was provided in community settings and integrated with other treatments. Wanders et al. (2008) compared four sessions of EMDR to four sessions of CBT and found that both reduced behavioral and self-esteem problems, but that the improvements in the EMDR group were slightly greater than the CBT group. The study by Wanders and colleagues also supports the benefits of EMDR on trauma-related outcomes (e.g., behavior, self-esteem) in addition to posttraumatic stress symptoms. Soberman et al. (2002) found that boys with conduct problems who received standard care plus three sessions of EMDR showed a greater reduction of symptoms when compared to boys only receiving standard care. Rubin and colleagues (2001) assessed the effectiveness of EMDR for a small sample of children when added to the typical treatment protocol in a child guidance clinic and found that there was no clinical impact of adding EMDR to the treatment when the sample receiving EMDR was compared to a sample that only received routine treatment. The sample size for many of these studies is quite small, suggesting the need for larger studies that test the impact of EMDR for a more diverse population of children.

Recently, Beer (2018) conducted a comprehensive review of the literature examining the efficacy of EMDR for children with PTSD. She examined 15 studies that included EMDR as (a) single treatment, (b) a component of a treatment protocol, or (c) compared it as a single treatment to another treatment, for children with trauma-related symptoms after being exposed to a PTE. The results revealed that all of the studies found that treatment led to significant reductions in posttraumatic and trauma-related symptoms. However, the four studies that compared EMDR with CBT found no difference in symptom reduction between the two treatments. Importantly, Beer called

for more studies examining problems related to traumatic symptoms, such as behavior problems, and how they are impacted by EMDR (see Wanders et al., 2008 above). Studies such as these will help elucidate what symptoms or problems EMDR can effectively address besides posttraumatic symptoms (Beer, 2018).

In short, although EMDR represents a promising and cost-effective treatment approach, more research is needed to better understand the processes through which this intervention may positively impact participating children and youth (e.g., Field & Cottrell, 2011; Jaberghaderi et al., 2004; Racco & Vis, 2015; Ramsdell et al., 2015). Some researchers suggest that using EMDR in conjunction with other treatment approaches may maximize the potential for healthy outcomes among children and adolescents (e.g., Field & Cottrell, 2011). Moreover, examination of potential mediating and moderating factors (e.g., related to type of traumatic event, age, parents/caregiver characteristics and practices) may also elucidate the conditions under which EMDR may be more or less effective (e.g., Scheeringa & Zeanah, 2001; Zeman et al., 2006). Therefore, studies that examine additional outcomes besides PTSD symptomatology, explore differences based on types of traumatic events, and that assess EMDR as part of an integrated treatment protocol have the potential to add to the literature in meaningful ways.

## Present Study

The present open trial examined the impacts of receiving an integrated EMDR treatment program at an outpatient mental health clinic among children and adolescents exposed to PTEs. Similar to the study by Rubin et al. (2001), but with a much larger sample, this study examined a treatment protocol that included EMDR and other treatment interventions. Additionally, the present trial examined changes in trauma-related outcomes, rather than just PTSD symptoms. Specifically, we assessed whether the number of types of exposure to family-related and non-family-related traumatic events, as well as differences in severity of PTSD symptomatology, was associated with changes in internalizing and externalizing problem behaviors from intake to 6 months. Given that prior research suggests that family-related trauma is distinct from other forms of trauma (Crusto et al., 2010; Tolan et al., 2006), the present study assessed the effects of family-related trauma versus non-family-related trauma on changes in internalizing and externalizing child problem behaviors from baseline to 6 months posttreatment.

## Method

This article reports data collected as part of the evaluation of a 4-year grant awarded by the Substance Abuse and Mental Health Services Administration (SAMHSA) to the Village for Families & Children, Inc. in Hartford, Connecticut. The grant initiative, called the *Village Collaborative Trauma Center (VCTC)*, had two goals: (a) to expand treatment options in its multisite outpatient behavioral health clinic, and (b) to build capacity of the broader system of care in Hartford by partnering with clinical organizations to provide evidence-based trauma-informed care.

The Village for Families and Children (Village) is an outpatient behavioral health clinic that serves children and adolescents in families who have significant histories of poverty, exposure to community violence, parental substance abuse and psychiatric difficulties, ethnic minority and/or immigration status, language barriers, transportation limitations, and lack of familiarity with the broader mental health service system. Oftentimes due to these histories, families report having been exposed to PTEs prior to program intake. The SAMHSA funding allowed the Village to train its workforce and those from partner agencies to provide child-parent psychotherapy (CPP) and EMDR therapy to Hartford-area children and their families affected by abuse and neglect, domestic and community violence, and toxic stress. This study includes the results of the evaluation of EMDR therapy, delivered as part of an integrated treatment protocol, and provided by master's-level Village clinicians who received training and were trained to provide this intervention. Clinicians received the following training: the EMDR Basic Training (part 1 and 2) provided by a Trauma Recovery/humanitarian assistance programs (HAP) trainer; training highlighting techniques to introduce and deliver EMDR to children; and ongoing consultation with a HAP Consultant.

## Participants

The Village enrolled 278 children and families in treatment services that integrated EMDR with standard care between October 2012 and October 2016. Of these families, 143 met the eligibility criteria to be included in the outcome analysis. Eligibility was defined as having received at least three EMDR sessions, having interview data for at least one of the outcome measures at 6-month follow-up, and having agreed to participate in the evaluation. There were no significant differences between those children included in the outcome study and those who did not

meet these eligibility criteria. The sample was 49.7% female, with an average age of 12.9 years (standard deviation [*SD*] = 3.4; Range = 6–18). In regard to race and ethnicity, 28.7% of the sample was Black/African American; 15% was White; 7% was biracial; and 1% was Asian. Race information was missing for 48.3% of the sample. In addition, 65.0% of the sample identified as Hispanic/Latino. Children and youth who received services at the Village were in treatment for an average of 11 months (*SD* = 6.95; Range = 1–36). They received EMDR treatment sessions for an average of 7.63 hours (*SD* = 5.67; Range = 1.83–33.02) and other treatment sessions for an average of 20.08 hours (*SD* = 39.82; Range = 00–285.25). Overall, children and youth received an average of 33 treatment sessions, 10 of which were EMDR sessions. Non-EMDR treatment sessions were relational based and were delivered in individual counseling, family therapy, art therapy, and group therapy modalities.

## Procedure

Village staff, trained by the Yale University evaluation team, administered the measures included in this evaluation as part of service delivery. At intake into services, parents/caregivers were informed about the evaluation and asked to sign a release of information allowing their de-identified data to be shared with the University evaluation team. In addition, parents/caregivers were asked to sign a separate release giving the Village staff permission to release their contact information if they were no longer in services at the 6-month reassessment. Those families who signed this form and who were no longer in services were contacted by the University evaluation team and invited to participate in an interview with a trained evaluator to administer the measures; these families provided active consent and received a \$20 gift card to compensate them for their time. This study was approved by the University Human Research Protection Program and the institutional review board at the Village.

## Measures

Demographic information and number of EMDR treatment sessions to determine eligibility for the study were obtained from the electronic medical record at the Village. The following measures were administered by the clinical staff who were providing services to the children and their families.

***Child Trauma Exposure and PTSD Symptoms.*** The Trauma History Screen: Youth Version (THS; Carlson et al., 2011) was administered to parents/caregivers at EMDR enrollment to collect information about their children's history of exposure to different types of PTEs. The 19-item scale asks parents to report if their child has ever been exposed to 19 different types of PTEs and, if exposed, to indicate the frequency of exposure (once, 2–3 times, 4–10 times, more than 10 times). Finally, respondents were asked to indicate which type of exposure bothers their child the most right now.

The University of California, Los Angeles (UCLA) PTSD Reaction Index (Steinberg et al., 2004) was also used to determine a child's likelihood of PTSD. All parents/caregivers completed the scale for their child at baseline. Validity testing has shown higher scores among traumatized samples when compared with comparison groups and test-retest validity has ranged from good to excellent (Steinberg et al 2004).

***Child Problem Behaviors.*** The Child Behavior Checklist (CBCL) is a norm-referenced measure of problem behaviors providing standardized comparisons across children 6–18 years of age. Parents/caregivers rated their child's behavioral and emotional impairment by completing 113 items, which yield a total problem score and two subscales. The internalizing subscale is a measure of internalizing problem behaviors, such as withdrawal, somatic complaints, anxiousness, and depression, while the externalizing subscale measures externalizing problem behavior, such as delinquent and aggressive behavior. Raw scores are converted into standard T scores, with T values of 60 to 63 considered borderline clinical and scores above 63 in the clinical range. Adequate reliability and construct validity for the CBCL have been demonstrated (Achenbach & Edelbrock, 1983).

## Missing Data

The population served by this clinic are impoverished, have multiple demands, and are highly mobile. Given these factors, there were times when the 6-month follow-up data collection was not able to be completed by the clinicians. Therefore, some of the analyses were not available for all 143 participants (missing data ranged from 2% to 10% depending on the variables in the analyses). Regression analyses were conducted with Full Information Maximum Likelihood (FIML) to handle missing data.

## Results

### Preliminary Analyses

Correlational analysis revealed significant positive correlations between baseline scores of internalizing problem behaviors and posttraumatic stress symptoms ( $r(129) = .62, p < .001$ ) as well as between baseline scores of externalizing problem behaviors and posttraumatic stress symptoms ( $r(129) = .33, p < .001$ ). Correlational analysis and analysis of variance (ANOVAs) explore any potential differences on the main variables by child's age. The only significant finding was a small but significant negative correlation between child's age and baseline scores on externalizing problem behaviors ( $r(133) = -.20, p < .05$ ). Finally, there were no significant relationships between baseline posttraumatic stress symptoms and number of treatment sessions or baseline CBCL scores and number of treatment sessions.

### Changes in Outcomes from Baseline to 6 Months

Paired samples  $t$  tests examined potential changes in youth problem behaviors from baseline to 6 months. There was a significant decrease on CBCL total scores from baseline ( $M = 69.67, SD = 7.83$ ) to the 6-month follow-up assessment ( $M = 65.67, SD = 10.63$ );  $t(127) = 4.42, p < .001, d = .46$ . There were also significant decreases on CBCL externalizing subscale scores from baseline ( $M = 65.75, SD = 9.87$ ) to 6 months ( $M = 63.19, SD = 11.47$ );  $t(127) = 2.99, p < .01, d = .24$ , and on CBCL internalizing subscale scores from baseline ( $M = 68.38; SD = 9.17$ ) to 6 months ( $M = 63.90; SD = 11.50$ );  $t(127) = 5.37, p < .001, d = .43$ .

### Number of PTEs and Changes in Outcomes

Caregiver responses on the THS indicated the quantity and type of PTEs to which children were exposed. Following previous research (Crusto et al., 2010; Kaufman et al., 2011; Tolan et al., 2006), the data from the THS was analyzed for two domains: family-related and non-family-related traumatic events. On average, the children were exposed to 6.5 PTEs at program enrollment, including 2.9 family-related events and 3.6 non-family-related events. As shown in Table 1, the most frequent types of family-related events included having been unexpectedly separated for more than a few days from someone who they depend on for love or security (70%), having seen

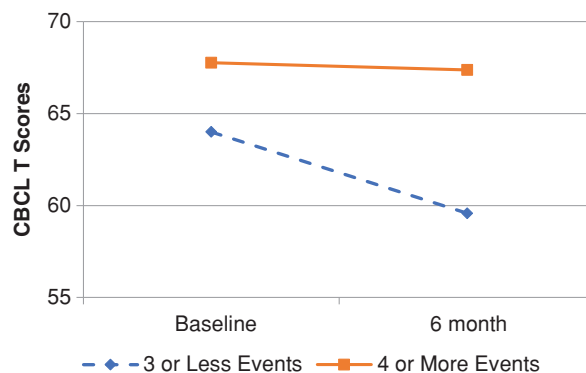
a family member get arrested or become incarcerated (54%), and having been physically hurt or threatened by someone (46%). The most frequent types of non-family-related events included having known someone who died (70%) and having seen or heard people physically fighting or threatening to hurt each other (66%).

**TABLE 1. Proportion of Traumatic Events Reported at Baseline on the Trauma History Screener (Caregiver Reported),  $n = 143$**

<i>Has the child ever ...</i>	
Family-Related Traumatic Events	
Been unexpectedly separated from someone who they depend on for love or security for more than a few days	70%
Seen a family member get arrested or in jail	54%
Been physically hurt or threatened by someone (typically family member)	46%
Had a time in their life when they did not have the right care (e.g., food, clothing, housing)	32%
Been forced to see or do something sexual	26%
Had someone close to them try to kill or hurt themselves	24%
Seen or heard someone else being forced to do something sexual	10%
Been kidnapped	2%
Non-Family-Related Traumatic Events	
Known someone who died	70%
Seen or heard people physically fighting or threatening to hurt each other	66%
Had someone they know been so badly injured or sick that they almost died	33%
Seen or heard somebody shooting a gun, using a knife, or using another weapon	31%
Watched people using drugs	29%
Been in or seen a very bad accident	26%
Been in or seen a hurricane, earthquake, tornado, or bad fire	22%
Seen something that was very scary or where they thought somebody might get hurt or die	20%
Been attacked by a dog or other animal	14%
Been robbed or seen someone get robbed	11%
Been so sick or hurt that they or the doctor thought they might die	10%

To examine the potential relations between exposure to PTEs and changes in outcomes from baseline to 6 months, we conducted regression analyses and used gain scores (Allison, 1990) for the CBCL from baseline to the 6-month follow-up assessment. Analyses were conducted using AMOS 25.0 Statistical package. FIML was used to handle missing data. Results revealed that the number of non-family-related events was positively associated with CBCL externalizing scores, indicating that the more non-family-related traumatic events to which children were exposed, the less improvement they made on externalizing problem behaviors from intake to 6 months ( $\beta = 0.28$ , standard error [SE] = 0.30,  $p < .001$ ). In other words, children who reported fewer non-family-related traumatic events exhibited a greater decrease in externalizing problem behaviors when comparing results from intake to 6 months after program enrollment. There was no significance in the relation between non-family-related traumatic events and changes in internalizing problem behaviors ( $\beta = 0.09$ ,  $SE = 0.31$ , *ns*). There was also no significant relationship between changes in internalizing problem behaviors ( $\beta = 0.10$ ,  $SE = 0.49$ , *ns*) from intake to 6 months for family-related events, but the relationship with externalizing problem behaviors approached significance ( $\beta = 0.16$ ,  $SE = 0.50$ ,  $p = .06$ ). It is important to note that, despite some significant coefficients, there was still a large amount of variance that was not accounted for in these relations.

These results informed further examination of the results for non-family-related traumatic events, in which we separated the children into two groups: those who had been exposed to three or less potentially traumatic non-family-related events ( $n = 62$ ) and those who had been exposed to four or more potentially traumatic non-family-related events ( $n = 52$ ). An independent samples *t* test found that children who were exposed to three or less events showed significantly greater reductions (i.e., improvements) on externalizing problem behaviors than those who had been exposed to four or more events [ $t(107) = -2.24$ ,  $p < .05$ ]. As shown in Figure 1, the scores on the CBCL externalizing behaviors scale also dropped to below the clinical cut-off at 6 months for the children exposed to three or fewer events ( $M = 59.58$ ,  $SD = 11.55$ ), while the scores remained above this cut-off for children exposed to four or more PTEs ( $M = 67.38$ ,  $SD = 11.30$ ). An independent samples *t* test conducted on internalizing problem behaviors did not find any difference between children who were exposed to three or fewer events compared to four or more events [ $t(107) = -0.88$ , *ns*].

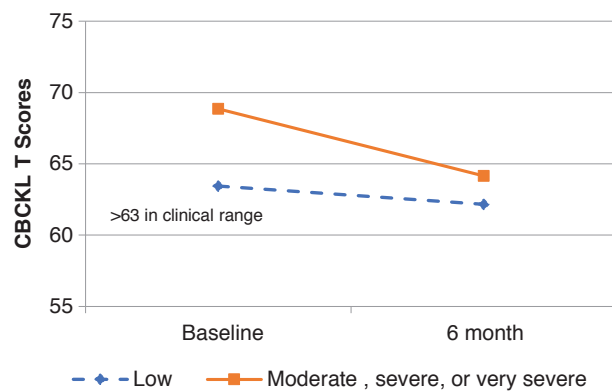


**Figure 1.** Differences on CBCL externalizing scores from baseline to 6-month follow-up by number of non-family-related traumatic events. 3 or Fewer Events: baseline  $M = 64.00$  ( $SD = 9.87$ ), 6-month  $M = 59.58$  ( $SD = 11.55$ ); 4 or More Events: baseline  $M = 67.77$  ( $SD = 8.16$ ), 6-month  $M = 67.38$  ( $SD = 9.46$ ).

### Posttraumatic Stress Symptoms and Changes in Outcomes

Regression analyses also assessed associations among number of children's posttraumatic stress symptoms at baseline, as measured by the UCLA PTSD Reaction Index (caregiver report), and change scores on the CBCL internalizing and externalizing scales from intake to the 6-month follow-up assessment (using gain scores), while controlling for the child's gender. CBCL externalizing scores were negatively associated with number of posttraumatic symptoms, indicating that the more posttraumatic stress symptoms a child demonstrated, the more improvement they made on externalizing problem behaviors from intake to 6-month follow-up ( $\beta = -0.19$ ,  $SE = 0.07$ ,  $p < .05$ ). In other words, children with more severe symptomatology exhibited a greater decrease in externalizing problem behaviors from intake to 6 months. There was no association between number of posttraumatic stress symptoms and changes in internalizing problem behaviors ( $\beta = -0.14$ ,  $SE = 0.07$ , *ns*).

To further examine these results, we compared the clinical categories of the children based on their posttraumatic symptoms from the UCLA PTSD Reaction Index. Of the children in the study, 48% were in the *low* level of PTSD symptomatology category, 19% were in the *moderate* level, and 27% were in the *severe to very severe* level. An independent samples *t* test found that those children in the *moderate* or *severe to very severe* categories showed greater reductions in externalizing problem behaviors than those in the *low* category [ $t(122) = 2.03$ ,  $p < .05$ ]. No difference was found between these two groups on gain scores for internalizing problem behaviors [ $t(122) = 1.35$ , *ns*].



**Figure 2.** Differences on CBCL externalizing scores from baseline to 6-month follow-up by clinical categories of posttraumatic stress symptoms (UCLA PTSD Reaction Index). Low category: baseline  $M = 63.43$  ( $SD = 9.78$ ), 6-month  $M = 62.16$  ( $SD = 10.53$ ); Moderate, severe, or very severe category: baseline  $M = 68.86$  ( $SD = 9.08$ ), 6-month  $M = 65.15$  ( $SD = 12.45$ ).

see Figure 2]. These findings suggest that children with more severe PTSD symptoms showed greater improvement on externalizing problem behaviors from intake to 6 months than children with less severe symptoms. Figure 2 also illustrates that, although children with more severe symptoms had greater improvement, they also had more externalizing problem behaviors at program enrollment. As a result, their improvement at 6 months meant that their scores remained in the clinical range, whereas children with less severe symptoms had scores that were no longer in the clinical range.

## Discussion

This study sought to examine the impacts of an EMDR-integrated treatment program on children and youth at a community-based outpatient clinic that serves an impoverished, urban community comprised primarily of residents who are individuals of color (US Census, 2010). This study adds to the underdeveloped literature that examines the impacts of EMDR therapy, delivered as part of an integrated treatment protocol, on ethnically, racially, and economically diverse children and youth. The results indicated that, overall, from intake to 6-month follow-up, there was a statistically significant reduction in internalizing and externalizing problem behaviors. This finding is consistent with the results of other studies of youth receiving EMDR that found a reduction in symptoms (Beer, 2018; Fleming, 2012). What is important about this finding is that these results were obtained

in a diverse sample of children and youth residing in underresourced neighborhoods who received services in a community-based clinic, thus demonstrating the potential for community clinicians to implement EMDR as one modality of treatment for children exposed to multiple traumatic events.

In light of research that demonstrates the differential impacts of family-related PTEs versus non-family-related PTEs (e.g., Crusto et al., 2010), we examined these data to determine if the number of different types of PTE at intake was related to changes in problem behaviors. We found that for this treatment-seeking sample of children and youth, the number of non-family-related PTEs was significantly related to change in externalizing problem behaviors, and there was trend-level significance when family-related PTEs were examined in relation to externalizing problem behavior change scores, such that the higher the number of PTEs, the smaller the improvement in externalizing problem behaviors. It is important to note that although those children and youth with exposure to fewer PTEs moved from above the clinical cut-off at intake to below after treatment that included EMDR, those children with exposure to higher numbers of PTEs improved but their externalizing scores remained above the clinical cut-off after treatment. This finding seems to align with a meta-analysis conducted by Rodenburg and colleagues (2009) that indicates that treatment protocols that include EMDR are efficacious for children with type 1 trauma; however, more research is needed to understand this finding.

This study also examined how the level of PTSD at intake was associated with the rate of change in problem behaviors, and found that those children and youth with higher levels of symptoms evidenced a greater reduction in problem behaviors when compared to children and youth with lower levels of PTSD symptoms. This result contrasts with the finding related to the number of PTEs reported earlier, where more non-family-related traumatic events was related to less improvement. However, it does suggest that treatment protocols that include EMDR therapy may be more effective for those children and youth who present with higher levels of PTSD symptoms (Ahmad et al., 2007); again, further research is needed to understand this finding.

Taken together, these findings point to the importance of assessing both the number of types of PTEs to which a young person has been exposed and the presence and level of PTSD symptoms in assessing how

interventions for children and youth exposed to PTEs may contribute to improved health outcomes. However, these findings also provide some indication that EMDR-integrated protocols may be effective interventions for children and youth exposed to PTEs, especially those who have more discrete exposure and who exhibit higher levels of symptoms.

### Limitations

Although the results of this study add to the literature on the potential benefits of community-based EMDR-integrated protocols for children and youth exposed to PTEs, these results need to be considered in light of the limitations of this study. Most importantly, given that there was no comparison group, we cannot differentiate the effects of EMDR for this sample from the effects of other therapeutic services provided to the families at the Village. This limitation also includes threats to internal validity, such as regression to the mean. In addition, the sample for this study included 143 families seeking services at a specific outpatient clinic who received services based on clinical need and not part of a standardized treatment protocol, thus limiting the generalizability of these findings to other populations. Another limitation of this study is that PTSD symptoms were not assessed posttreatment, thus limiting the ability of this study to fully assess the impact of providing EMDR as part of the treatment protocol.

### Future Directions

Although the results of this study hold promise for more widespread implementation of treatment protocols that include EMDR in outpatient community clinics, additional research is needed to enrich understanding of the processes through which EMDR may optimize cognitive, emotional, and behavioral functioning among diverse children and youth (Racco & Vis, 2015). In particular, studies that include a comparison group of youth who have similar clinical presentations and types of exposure to traumatic events will help to elucidate whether EMDR therapy may differentially contribute to youth health and well-being, as well as compare EMDR-only treatment with EMDR-integrated treatments. In addition, it will be important to test the efficacy of EMDR with children and youth from diverse ethnic, racial, and socioeconomic backgrounds. Finally, enhanced understanding of the characteristics associated with effective EMDR implementation may meaningfully inform more

widespread distribution of EMDR therapeutic services in community settings.

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