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Victims of Child Abuse Dropping Out of Trauma-Focused Treatment: A Meta-Analysis of Risk Factors

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Abstract

A substantial number of children who experienced child maltreatment drop out of evidence-based trauma-focused treatments (TF-CBT). Identifying child, family, and treatment-related factors associated with treatment dropout is important to be able to prevent this from happening and to effectively treat children’s trauma-related symptoms. Methods: A quantitative review was performed based on a systematic synthesis of the literature on potential risk factors for dropout of trauma-focused treatment in maltreated children. Results: Eight studies were included, that examined TF-CBT, reporting on 139 effects of potential risk factors for dropout. Each factor was classified into one of ten domains. Small but significant effects were found for the “Demographic and Family” risk domain (r = .121), with factors including being male, child protective services involvement or placement, and minority status, and for the “Youth Alliance” risk domain (r = .207), with factors including low therapist-child support and low youth perception of parental approval. Moderator analyses suggested that family income and parental education may better predict the risk for TF-CBT dropout than other variables in the “Demographic and Family” domain. Conclusions: Our results provide a first overview of risk factors for dropout of trauma-focused treatments (TF-CBT) after child maltreatment, and highlight the role of the therapeutic relationship in this.

Keywords Trauma-focused treatments · Children · Drop out · Attrition · Predictors · Risk factors · Meta-analysis

Highlights

• Significant effects of two risk domains for child dropout were found.
• This meta-analysis contributes to the literature on dropout of children from trauma-focused treatment, by providing a first overview of factors that can be regarded as risk factors for TF-CBT dropout in children, and specifically those who have experienced CAN.
• Static factors make an already vulnerable population more vulnerable for dropout.
• More primary studies on putative risk factors for dropout are needed.

Ramón J. L. Lindauer and Irma M. Hein share senior authorship.

Enduring child maltreatment is common (Finkelhor et al., 2015; Stoltenborgh et al., 2014). It can be passed on intergenerationally (Assink et al., 2018), and has been shown to be associated with negative consequences, such as post-traumatic stress symptoms (PTSS; Moretti et al., 2006) and comorbid problems, including depressive and anxiety disorders and externalizing behavior problems (Gardner et al., 2019; Kisely et al., 2018). Fortunately, interventions such as Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) (Cohen & Mannarino, 2017) and Eye Movement Desensitization and Reprocessing (EMDR) (Shapiro, 1996) are available

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to treat children after child maltreatment. According to multiple reviews and meta-analyses, both treatments have proven to be effective for the treatment of PTSS after one or more events of child maltreatment (Beer, 2018; Guttemann et al., 2016; Hoogsteder et al., 2021; Leenarts et al., 2013; Lenz & Hollenbaugh, 2015; Lewey et al., 2018; Somers et al., 2022; Thielemann et al., 2022). Several international clinical guidelines provide a clear body for the evidence of the effectiveness of TF-CBT (Bisson et al., 2019; NICE, 2018; WHO, 2013, 2017) and EMDR (Bisson et al., 2019).

A recent meta-analysis on children’s rates of dropout from psychological treatment for posttraumatic stress disorder (PTSD) revealed an overall dropout rate of 11.7% (Simmons et al., 2021). However, studies with considerable higher dropout rates ranging from 25 to 55% are known (Diehle et al., 2015; Eslinger et al., 2014; Wamser-Nanney & Steinzor, 2017). Children who successfully complete treatment show the largest improvements in behavioral and emotional functioning (Risser & Schewe, 2013). This puts children dropping out of treatment at risk for their symptoms to remain the same or worsen (Goenjian et al., 2005). Additionally, children who drop out of treatment are at risk of not starting treatment in the future, which makes them vulnerable for negative long-lasting consequences, such as substance abuse or personality disorders (Messman-Moore & Bhuptani, 2017). This vulnerability may be explained by the inhibitory learning model stating that, through exposure, children learn that what is feared might actually not happen (expectancy disconfirmation) (Craske et al., 2008, 2014; Knowles & Olatunji, 2019). When children do not complete treatment, they will not learn that their fear can diminish. In fact, their fear may even increase, and chances of engaging a new trauma-focused treatment may decrease due to this previous negative experience with treatment. This principle highlights the importance of preventing treatment dropout and completing trauma-focused treatments. Identifying child, family, and treatment factors that contribute to treatment dropout is thus essential to prevent children from dropping out of trauma-focused treatment and to effectively treat their trauma-related symptoms.

Noteworthy is that most studies on trauma-focused treatments, including those on TF-CBT and EMDR, tend to exclude participants from their analyses when they drop out (Cohen et al., 2007; Wanders et al., 2008). Nevertheless, there are studies available that performed intention-to-treat (ITT) analyses, in which effects are adjusted for dropouts (Diehle et al., 2015; Goldbeck et al., 2016). Fortunately, increasing calls are made for studying risk factors for dropout (Leenarts et al., 2013; Stallard, 2006), and researchers have started to pay more attention to the nature of the dropout group. Studies are subsequently designed to identify risk factors for treatment dropout in children and youth who receive EMDR and TF-CBT.

Multiple determinants for dropout have been described in the literature and various child characteristics make up one group of these determinants. For instance, older children seem more likely to drop out of treatment, which might be explained not only by the reduced authority caregivers have when children grow older, but also by children’s school commitments and extracurricular activities that interfere with treatment attendance (Celano et al., 2018; Fraynt et al., 2014). Children placed in foster care seem less likely to drop out than children living with their biological parents or family members (Eslinger et al., 2014; Sprang et al., 2012; Yasinski et al., 2018), which may be explained by foster parents being more likely than biological parents to attend and complete treatment with their foster child because they are monitored by state agencies (Yasinski et al., 2018). It also appears that children with abusive parents are more likely to drop out of trauma-focused treatments (DeLorenzi et al., 2016; Lau & Weisz, 2003). Abusive parents who take their children to treatment may either have insufficient concern for their child’s well-being to stay engaged in treatment, or do not allow their child to talk about the traumatic memories (Lau & Weisz, 2003). As these children are involved in treatment at the discretion of their parents, this may lead to them not being capable of being fully engaged in the treatment (Koverola et al., 2007).

High levels of child avoidance symptoms also seem to hinder treatment retention (Murphy et al., 2014; Yasinski et al., 2018). Children with PTSS may emotionally disregulate when they think of the traumatic memory. Therefore, they may avoid situations that could trigger thoughts and feelings of the traumatic memory (Kashdan & Kane, 2011). As trauma-focused treatments encourage children to engage with their traumatic memories, children with PTSS may be hesitant to continue treatment (Murphy et al., 2014; Yasinski et al., 2018). Higher levels of child externalizing problems are also associated with dropout. Child externalizing behavior may be accompanied by increased levels of caregiver stress, which may lead to parental frustration and subsequently to the children dropping out of treatment (Wamser-Nanney & Steinzor, 2016). Child externalizing behavior as a risk factor, may also increase the chances of getting involved in the juvenile justice system, which could disrupt treatment (de Haan et al., 2014).

In addition, family characteristics and dynamics may explain why some children drop out of treatment. Children perceiving only low levels of parental approval for treatment are more likely to drop out, due to them mirroring their parents’ ambivalence (Ormhaug & Jensen, 2016). In addition, caregiver avoidance in treatment sessions, which refers to caregivers protecting themselves by moving away from the problems at hand, is associated with child dropout (Yasinski et al., 2018). Further, the stressful environment of families that experienced abuse in the past may also limit commitment to
treatment (DeLorenzi et al., 2016; Lau & Weisz, 2003). When children are accompanied in treatment by their non-abusive caregivers, these caregivers may avoid or be hesitant to discuss past abuse and therefore prefer to terminate treatment as soon as certain child problem behaviors diminish (Lau & Weisz, 2003). Other family difficulties such as legal and financial challenges as well as potential homelessness may prevent a family from staying engaged in mental health services (Cohen et al., 2011). Moreover, certain treatment/therapist variables have been linked to dropout. Lower therapist-rated alliance with the child in treatment as a lack of parental involvement in the treatment have been shown to predict higher levels of dropout (Ormhaug & Jensen, 2016).

In the literature on risk factors, a differentiation is made between static and dynamic risk factors (Condelli & De Leon, 1993; Goethals et al., 2012). Static risk factors are those that pertain to unchangeable characteristics, such as age and minority status, while dynamic risk factors define changeable characteristics, such as psychiatric symptoms or child-therapist relationship quality. By gaining insight into both types of risk factors, treatment can be individualized more effectively for the specific needs of children and their families, thus decreasing the rates of dropout and increasing the chance of successful treatment completion.

To our knowledge, there has not yet been a quantitative overview of the putative risk factors for treatment dropout in children receiving EMDR and TF-CBT. Therefore, this study aimed to meta-analytically examine the effects of potential risk factors for treatment dropout in children receiving EMDR or TF-CBT following child abuse and neglect (CAN). This study aims to contribute to the knowledge on variables that are potential risk factors for dropping out of trauma-focused treatment, so that interventions can be individualized. Thus, this study hopes to help increase the potential for successful completion of trauma treatment and reduce PTSS in children after victimization.

**Methods**

The protocol for this review was registered at PROSPERO (registration number: CRD42019145948).

**Selecting Studies**

The fourth author searched for primary studies in the databases Medline, EMBASE, and PsycINFO until December 2021. The search string that was used for searching these databases can be summarized as follows: ((TF-CBT OR EMDR) AND dropouts) OR ((TF-CBT OR EMDR) AND child abuse). Appendix A presents the full search string.

Primary studies had to meet several criteria to be eligible for inclusion in this review. We focused on studies that examined children and adolescents between 3 and 18 years old with trauma-related symptoms and a history of CAN who received TF-CBT or EMDR. Consequently, studies that reported at least one univariate association between a child, parent, or treatment characteristic and dropout for inclusion. Only studies written in English or Dutch were included. We excluded studies using a case-study or qualitative approach.

After removing duplicates, the initial electronic search yielded 7,588 studies. The identified studies were imported into the software program Rayyan (Ouzzani et al., 2016) to determine eligibility for inclusion. The first and last author independently screened titles and abstracts of the first 100 identified articles against the inclusion and exclusion criteria, after which Cohen’s Kappa was calculated to determine inter-rater agreement on study inclusion. Initially, Cohen’s Kappa was 0.459. Next, both authors thoroughly discussed their screening process and came to full consensus on study inclusion and exclusion. Both authors independently screened titles and abstracts of a new set of 100 primary studies. Cohen’s Kappa was again calculated, and found to be 1.00, implying full consensus between both authors on study inclusion. The first author continued screening titles and abstracts of the remaining studies.

After finishing with the screening of titles and abstracts, we excluded 7,402 articles and obtained the full texts of the remaining 186 articles. The first author read all full texts and excluded or included the articles based on the eligibility criteria. For any excluded article, we kept track of the reason for exclusion. Whenever the first author was in doubt about the inclusion of a study, the last author was consulted. We contacted the corresponding author of five primary studies to request additional information that was needed to determine study eligibility. Three authors provided us with the requested data. As a result, eight articles met the inclusion criteria. The search procedure was performed again in June 2020 and August 2021 but yielded no additional eligible studies. The last repetition of the systematic search in December 2021 produced one additional study. However, the study’s author did not respond to our request for additional information. Therefore, the study was not included. Appendix B presents the flow diagram of the study selection procedure.

**Coding of Studies**

We followed Lipsey and Wilson (2001) guidelines as a coding form, which was developed and drafted by the first and third author. We coded several variables for descriptive purposes (Appendix F) and several variables to test as moderators (Appendix C).

In addition, we extracted or calculated an effect size for each potential risk factor for treatment dropout. However,
there were too many potential risk factors to examine individually. To nonetheless have valid analyses, the first and third author classified each individual factor into one of ten domains that were more or less similar in nature. These domains are listed in Appendix D, with examples of factors classified in each domain.

All studies were coded in SPSS. The first and third author coded all included studies together.

**Calculation of Effect Sizes**

We chose the Pearson’s $r$ correlation coefficient as the common effect size, which represented the relationship between a potential risk factor and treatment dropout. Most of the studies reported Pearson’s correlations, means and standard deviations, $p$-values, $t$-statistics, and Cohen’s $d$ values. When the Pearson correlation was not reported directly, we converted the reported statistical information into a Pearson’s $r$ value for each variable where the predictive value for dropout was examined. For these conversions, we used the Lipsey and Wilson (2001) effect size calculator. We interpreted effect sizes as small ($r > 0.100$), medium ($r > 0.243$), and large ($r > 0.371$) (Rice & Harris, 2005). In addition, it was vital that each correlation coefficient reflected the association between a potential risk factor and dropout in the appropriate direction. Therefore, we assigned a positive sign to correlation coefficients when higher levels of a variable (e.g., higher levels of mental health problems or higher levels of traumatic experiences) were associated with higher levels of treatment dropout. In contrast, we assigned a negative sign when higher levels of a variable were associated with lower levels of treatment dropout. For one non-significant factor (reported in Jensen et al., 2014), it was not possible to calculate a correlation coefficient, as the required statistical information was not provided in the primary study. Therefore, we assigned the value of zero, which is a conservative estimate of the true association between this factor and treatment dropout (Mullen, 1989).

Subsequently, we transformed Pearson’s $r$ values into Fischer $z$ scores prior to the statistical analyses, as Fisher $z$ scores assume a normal sample distribution (Cooper, 2010; Lipsey & Wilson, 2001). After we conducted the statistical analyses, we converted the Fisher’s $z$ scores back into correlation coefficients (Pearson’s $r$) to facilitate their interpretability.

**Statistical Analyses**

**Overall Strategy** We estimated the overall strength of each domain of risk factors. Subsequently, we were interested in how the overall strength of each individual risk domain was influenced by specific variables (e.g., mean sample age, gender, type of trauma, etc.). Therefore, we tested the coded variables as potential moderators for the strength of individual domains in separate meta-regressions. These moderator analyses were only performed when there was substantial heterogeneity in the effect sizes classified in each domain. By using this approach, we followed the analytical strategy of prior meta-analyses on risk factors for child sexual abuse victimization (Assink et al., 2019) and persistent delinquent behavior (Assink et al., 2015).

**Random Effects Models** We used a random-effects approach in our analyses, as we viewed the included primary studies to be a random sample of the population of studies (Van den Noortgate & Onghena, 2003). Random-effects models assume the presence of both within-study sampling error and between-study variance, and are favored in most meta-analyses (Kelley & Keller, 2012).

**Effect Size Dependency** As the studies typically examined more than one variable as a potential risk factor for treatment dropout, we extracted more than one effect size from most of the included studies. However, in meta-analytic research, an important assumption is independency of effect sizes (Cooper, 2010; Lipsey & Wilson, 2001). Thus extracting multiple effect sizes from single studies violates this assumption, as effect sizes extracted from the same study are more alike than effect sizes extracted from different studies (Houben et al., 2015). In more traditional approaches to meta-analysis (such as fixed-effect models or two-level random-effect models), this assumption is often met by averaging or eliminating effect sizes in primary studies (Assink & Wibbelink, 2016). However, these models have disadvantages, such as a loss of relevant information and statistical power. Furthermore, such methods limit the ability to address specific research aims, such as the synthesis of effects of potential risk factors for treatment dropout, which was the primary research aim in this review. For these reasons, we extracted all relevant effect sizes from each included study and accounted for effect size dependency by conducting a three-level approach to the meta-analysis (Assink et al., 2019; Assink & Wibbelink, 2016; Cheung, 2014; Van den Noortgate et al., 2013, 2014).

In a three-level meta-analytic model, three sources of variance are considered: variance in effect sizes extracted from different studies was modeled at level 3 (between-study variance); variance in effect sizes extracted from the same study was modeled at level 2 (within-study variance); and sampling variance at level 1 (Cheung, 2014; Hox, 2002; Van den Noortgate et al., 2013, 2014). With this three-level model, we calculated an overall effect size for each domain. Additionally, whenever significant between-study variance (level 3) and/or within-study variance (level 2) were observed, we examined variables as potential moderators of individual
Overall Strength of Individual Domains. We built a three-level meta-analytic intercept-only model for each domain in order to obtain its overall strength. In these models, the respective estimated intercept represents the overall effect of one domain; which was tested against the null hypothesis stating no effect in order to determine its significance. A domain was regarded as a risk domain whenever a domain’s overall effect was positive and significantly deviates from zero.

Assessment of Bias. Despite the extensive search for primary studies regarding risk factors for treatment dropout, it is possible relevant studies were missed due to limitations in our search strategy, or due to different forms of bias, such as publication bias or subjective reporting bias. Therefore, we conducted two analyses to examine the presence of a form of bias in the effect sizes. We conducted the funnel-plot-based trim and fill method (Duval & Tweedie, 2000a, b). The purpose of the trim and fill method was to restore the symmetry of the distribution by imputing estimates of effect size from “missing” studies in case of a potential asymmetrical distribution in effect sizes. Effect sizes were imputed on the left or right side of the funnel plot, depending on where in the plot effect sizes were underrepresented. In addition, we conducted an adapted Egger’s test (Egger et al., 1997). In this test, we regressed effect sizes on standard errors in the 3-level meta-analytic model in which effect size dependency was accounted for. A significant slope indicated bias. We conducted these two analyses in the R environment (R Core Team, 2015) using the metafor package with the functions “rma.mv” (Viechtbauer, 2010), and Assink and Wibbelink (2016) syntax. This syntax was written so that the three-level structure was applied to the meta-analytic model (Cheung, 2014; Van den Noortgate et al., 2014; Van den Noortgate & Onghena, 2003). We tested the significance of model coefficients two-tailed and applied the Knapp-Hartung adjustment (Knapp & Hartung, 2003); thus individual coefficients were tested using a t-distribution and all model coefficients were tested using an F-distribution (i.e., omnibus test, excluding the intercept). When estimating the model parameters, we applied the restricted maximum likelihood estimation method. In all analyses, we used a five percent significance level.

Results

Descriptives

This meta-analytic review included eight primary studies conducted between 2008 and 2020; with a total sample of 920 children receiving trauma-focused treatment after experiencing CAN (see Appendix E and F for study references and characteristics). The sample sizes of the studies ranged from 77 to 156 participants with a mean age of 12.42 years (SD = 2.39 at study onset). Six of the studies were conducted in North America and the other two in Europe. In all eight studies, the participants received TF-CBT. No studies on potential risk factors for dropout from EMDR were found, which means that further analyses in this paper focused on risk factors for dropout from TF-CBT only. The eight included studies generated a total of 139 separate effect sizes, each representing the association between a risk factor and dropout.

Overall Effects of the Domains

We grouped the potential risk factors into ten separate domains. One factor (number of sessions required for the diagnostic evaluation; r = 0.256) could not be allocated to one of the ten domains due to its unique nature. An overview of the overall effect of each of the ten domains is presented in Table 1. The overall effects of only two domains, Youth Alliance and Demographic and Family Variables, were
significant, however, effect sizes were small \( (r = 0.207\) and \(r = 0.121\), respectively).

### Analysis of Bias

The results of our bias assessment strategy are presented in Table 2. Based on the trim and fill analysis, there were two domains that may present an overestimation of the true effect: Child Other Mental Health Symptoms and Therapist Characteristics. There were three domains that may present an underestimation of the true effect: Demographic and Family Variables, Child Internalizing Mental Health Problems, and Child Posttraumatic Stress Symptoms. For conciseness, the 20 funnel plots that were conducted by the trim and fill analyses are not presented here. They are available upon request from the first author.

The “adapted” Egger’s test (Egger et al., 1997) indicated that none of the slopes \( (\beta_1) \) were significant. This implies that when accounting for effect size dependency, the regression test did not produce any evidence for bias.

### Heterogeneity and Moderator Effects

The results from the likelihood-ratio tests revealed significant variance between effect sizes extracted from the same study (i.e., level 2 variance) in two domains (Child Trauma Characteristics and Demographic and Family Variables). Additionally, we found significant variance between studies (i.e., level 3 variance) in one domain (Child Internalizing Mental Health Problems) (see Table 1). In seven domains, we found no significant level 2 or level 3 variance. We proceeded by testing variables as potential moderators based on significant between- and/or within-study variance in the domains Child Trauma Characteristics, Demographic and Family Variables, and Child Internalizing Mental Health Problems. We also tested variables as potential moderators in the domains Caregiver Alliance, Youth Alliance, Therapist Characteristics, Child Externalizing Mental Health Problems, and Child Posttraumatic Stress Symptoms, in alignment with the 75% rule (Hunter & Schmidt, 1990). No variables were tested as moderators in the Therapist Characteristics and Youth Alliance domains because these were only based on one and two studies, respectively.

Table 3 lists the significant results of the moderator analyses and Appendix G presents both significant and non-significant results. We found moderators in three domains.

#### Demographic and Family Variables

We found that effects of Demographic and Family Variables on TF-CBT dropout were higher when both effect sizes of socioeconomic status (SES) variables (family income, parental education) and other variables of this domain (age, gender etc.) were included in the model than when SES variables were left out. We found a trend-significant moderating effect of gender and involvement of child protective services (CPS) on the association between TF-CBT dropout and Demographic and Family Variables. None of the other variables were identified as moderators.

#### Child Internalizing Mental Health Problems

We found smaller effects of Child Internalizing Mental Health Problems on TF-CBT dropout when the percentage of Caucasian children in the sample increased. We also found a moderating effect of type of informant. The mean effect of this domain was higher when mental health problems were measured by youth reports than by parental reports. However, the mean effect of both youth and parental report did not significantly deviate from zero. Lastly, we found that the mean effect of this domain on TF-CBT dropout was lower in children who experienced child abuse and other types of trauma relative to children who only experienced child abuse trauma. We also found trend-significant moderating effects for type of assessment, definition of dropout, and other internalizing problems.

#### Child Posttraumatic Stress Symptoms

We found that the effects of Child Posttraumatic Stress Symptoms on TF-CBT dropout were higher in longitudinal studies than in other types of studies. However, the mean effect of longitudinal and non-longitudinal studies did not significantly deviate from zero. Additionally, we found that the association between PTSS and TF-CBT dropout was stronger when PTSS in children was measured with youth and other reports (file information or coding video’s), than when they were measured with parental reports. Nonetheless, the mean effect of parent and youth report did not significantly deviate from zero.

### Discussion

Over the past several decades, many studies have been conducted by focusing on developing evidence-based treatments for children with PTSS as a consequence of CAN. However, even though multiple evidence-based interventions have been developed and implemented in clinical practice, a substantial number of children do not complete these evidence-based interventions (Diehle et al., 2015; Eslinger et al., 2014; Wamser-Nanney & Steinzor, 2017). Fortunately, researchers have started to lay focus on this group of children and have identified risk factors for treatment dropout (Celano et al., 2018; Eslinger et al., 2014; Fraynt et al., 2014; Sprang et al., 2012; Wamser-Nanney & Steinzor, 2016, 2017; Yasinski et al., 2018).
Table 1 Overall Mean Effect for each of the Ten Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th># studies</th>
<th># ES</th>
<th>Mean Fisher’s Z (SE) [95% CI]</th>
<th>Sig. Mean Z (p)</th>
<th>Mean r % Variance at level 1</th>
<th>Level 2 variance % Variance at level 2</th>
<th>Level 3 variance % Variance at level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver Alliance</td>
<td>3</td>
<td>4</td>
<td>0.132 (0.068)</td>
<td>-0.084; 0.348</td>
<td>0.147</td>
<td>0.005</td>
<td>28.94</td>
</tr>
<tr>
<td>Youth Alliance</td>
<td>2</td>
<td>5</td>
<td>0.210 (0.062)</td>
<td>0.0038; 0.0381</td>
<td>0.027*</td>
<td>0.207</td>
<td>48.21</td>
</tr>
<tr>
<td>Child Trauma Characteristics</td>
<td>4</td>
<td>8</td>
<td>0.105 (0.063)</td>
<td>-0.044; 0.254</td>
<td>0.140</td>
<td>0.05</td>
<td>75.27</td>
</tr>
<tr>
<td>Demographic and Family Variables</td>
<td>6</td>
<td>40</td>
<td>0.122 (0.030)</td>
<td>0.063; 0.182</td>
<td>.001***</td>
<td>0.121</td>
<td>60.30</td>
</tr>
<tr>
<td>Therapist Characteristics</td>
<td>5</td>
<td>2</td>
<td>0.019 (0.102)</td>
<td>-0.263; 0.302</td>
<td>0.860</td>
<td>&lt;0.10</td>
<td>0.005*</td>
</tr>
<tr>
<td>Child Internalizing Mental Health Problems</td>
<td>2</td>
<td>24</td>
<td>0.033 (0.044)</td>
<td>-0.059; 0.125</td>
<td>0.463</td>
<td>0.000</td>
<td>60.58</td>
</tr>
<tr>
<td>Child Externalizing Mental Health Problems</td>
<td>2</td>
<td>13</td>
<td>0.038 (0.073)</td>
<td>-0.212; 0.198</td>
<td>0.610</td>
<td>0.38</td>
<td>33.98</td>
</tr>
<tr>
<td>Child Posttraumatic Stress Symptoms</td>
<td>4</td>
<td>29</td>
<td>0.019 (0.036)</td>
<td>-0.055; 0.092</td>
<td>0.604</td>
<td>0.19</td>
<td>21.16</td>
</tr>
<tr>
<td>Child Other Mental Health Symptoms</td>
<td>2</td>
<td>7</td>
<td>0.018 (0.040)</td>
<td>-0.081; 0.117</td>
<td>0.672</td>
<td>0.18</td>
<td>0.000</td>
</tr>
<tr>
<td>Parental Mental Health Symptoms</td>
<td>1</td>
<td>3</td>
<td>0.178 (0.063)</td>
<td>-0.095; 0.451</td>
<td>0.107</td>
<td>0.176</td>
<td>0.000</td>
</tr>
</tbody>
</table>

* Studies number of studies, # ES number of effect sizes with number of adjusted effect sizes in parentheses, Mean Fisher’s Z Mean effect size (Fisher’s Z), SE standard error, CI confidence interval of each mean Fisher’s Z, Sig. Significance, r Mean effect size (Pearson’s correlation), % Var percentage of variance explained, Level 2 variance variance between effect sizes extracted from the same study, Level 3 variance variance between studies

* These values are not equal to zero, but are rounded up to two decimals places

* p < .05; ** p < .01; *** p < .001
As to date, there was no systematic quantitative review summarizing effects of potential risk factors for dropout of EMDR or TF-CBT. We had no knowledge regarding which variables would be considered well-established and empirically supported risk factors for dropout from trauma-focused treatment. This meta-analytic review aimed at filling this gap by estimating an overall mean effect of a set of different potential risk domains of putative risk factors for treatment dropout. A second aim was to determine whether domain effects are affected by study, sample, and factor characteristics. This was done by examining these characteristics as potential moderators of the overall effect of each domain.

It is noteworthy that our systematic search did not yield any studies investigating putative risk factors for dropout from EMDR. However, it is known that studies examining treatment effects of EMDR in children are not immune to dropout, with studies reporting dropout rates between 22 and 30% (de Roos et al., 2011; Diehle et al., 2015; Jaberghaderi et al., 2004).

Below, we first discuss our findings regarding the overall effects of the domains; then we discuss the results of the moderator with respect to each domain, study, or sample characteristics.

**Overall Effects of Domains**

We found that the strongest associations, which had small effect sizes, were between child TF-CBT dropout and the domains Demographic and Family Variables and Youth Alliance, with small effect sizes. These results show that static factors, such as being a male, having a minority status, not living with a parent, low SES (family income, parental education), and CPS involvement, are significant risk factors for TF-CBT dropout in children. This finding is in line with previous research identifying static demographic variables as important predictors for trauma-focused treatment dropout for children (de Haan et al., 2013; Sprang et al., 2012; Wamser-Nanney & Steinzor, 2016).

Additionally, our results suggest that dynamic factors leading to a lower Youth Alliance, such as lower therapist-child support, therapist-child relationship difficulties, lower therapist-rated youth alliance, and lower youth perception of parental approval, are also significant risk factors for TF-CBT dropout in children. This is in line with the “barriers-to-treatment” model of Kazdin et al. (1997), which assumes that different factors are associated with treatment dropout, including the alliance between the client and therapist (Kazdin et al., 1997). Similar findings with regard to client alliance are found in studies on adults with PTSD (Keller et al., 2010) and studies examining youth alliance in the general field of mental health treatment for youth and their families (Garcia & Weisz, 2002; Hauber et al., 2020; Robbins et al., 2006).

Our findings emphasize the crucial role of youth alliance in trauma-focused treatments, as this population has been found to experience difficulties with feeling safe in relationships (Foster & Hagedorn, 2014). Additionally, children are rarely initiators of trauma treatment (Kendall et al., 2009). Our results are in line with previous research findings, which have emphasized the importance of the therapeutic alliance; particularly in therapeutic interventions that entail aspects of exposure (Ormhaug et al., 2014). A positive therapeutic alliance leads to increased feelings of safety and comfort, which encourages...
active treatment engagement during the more difficult aspects of treatment, thus decreasing the risk of treatment dropout.

In addition to therapist- or child-rated alliance, our results indicate that youth perception of parental approval also plays a role in the effects of youth alliance on TF-CBT dropout. This result is similar to previous research that found that children assess their parents' approval of the therapist and treatment, which impacts their treatment engagement. Jensen et al. (2010) explain that, given the impact of trauma on a child's core beliefs about others and the world, children may be more reliant on their caregivers' reassurance before forming new relationships (Ormhaug & Jensen, 2016). Moreover, parents or caregivers struggling with feelings of distress, shame, and guilt may feel ambivalent about bringing their children to treatment (Holt et al., 2014). It is reasonable to infer that children receiving trauma-focused treatment will need active encouragement and support from their caregivers in order to remain in treatment. When parents or caregivers are not able to give this support or do not give children explicit permission to talk about their trauma in treatment, children may begin to feel uncomfortable and express negativity towards their treatment (Ormhaug & Jensen, 2016). The lack of a supportive environment may increase children's fear during specific components of trauma-focused therapies, such as exposure. The expression of fear and discomfort toward treatment may be perceived as an indication that the treatment is not helpful, thereby increasing the chance of dropout.

For the remaining eight domains, we found no evidence for an association with TF-CBT dropout. This indicates that factors within these domains cannot be viewed as well-established and empirically supported risk domains for TF-CBT dropout.
in children. The results of our meta-analysis are partly in line and partly opposed to findings from previous research. On the one hand, some studies have not found an association between treatment dropout and caregivers’ mental health symptoms, children’s PTSS (Tebbett et al., 2018), nor trauma characteristics (Murphy et al., 2014). On the other hand, other research did find associations (Eslinger et al., 2014; Wamser-Nanney & Steinzor, 2017).

With regard to publication or selection bias, we must acknowledge that publication or selection bias may be an issue in five out of ten domains. However, the bias effects that were found for the five domains, are small (Δ mean d < 0.12), indicating that the mean effects of the five domains would not have changed substantively if the “missing” effect sizes had been found.

**Moderating Variables**

After first having discussed the overall domains, we here continue to discuss results of the moderator analyses.

**Domain Characteristics**

Moderator analyses showed that the effects of the domain Demographic and Family Variables on TF-CBT dropout were moderated by SES variables. This finding is consistent with research on children with disruptive behavior disorders (Fernandez et al., 2011) and on dropout in youth mental health care in general (de Haan et al., 2013). Besides, our findings mirror the theory of the barriers-to-treatment model, indicating that socioeconomic disadvantage is an important predictor of dropout (Kazdin et al., 1997). It is known from research that populations with lower SES have more risk of experiencing CAN (Macro et al., 2020), while populations with higher SES may function as a buffer for those who experienced trauma, enabling them to have access to treatment (Arai & Mock, 2011). Our findings indicate that having a low SES increases the chance of dropping out, which makes an already vulnerable population even more vulnerable.

**Study Characteristics**

Moderator analyses demonstrated that the effects of two domains (Child Internalizing Mental Health Problems and Child Posttraumatic Stress Symptoms) on TF-CBT dropout were moderated by type of informant. Our results carefully indicate that if Child Internalizing Mental Health Problems are measured by youth report instead of parental report, Child Internalizing Mental Health Problems may function as a risk domain for TF-CBT dropout. However, our results did not produce evidence for a true association between the mean impact of youth report and Child Internalizing Mental Health Problems, so caution is advised. Subsequently, our results indicate that Child Posttraumatic Stress Symptoms seem to be a risk domain for TF-CBT dropout, if measured by other types of report (file information or coding of videos). Nevertheless, caution is advised as other reports were only used in one study as the measuring method. These moderator results are in line with research showing that discrepancies between informants often arise when reporting about internalizing symptoms and PTSS (Curhan et al., 2020; De Los Reyes et al., 2015; Grant et al., 2020). Internalizing behavior may be more difficult to observe, and thus to report, by a respective other, such as a parent (De Los Reyes et al., 2015; Romano et al., 2018). Besides, by only using parent or child informant-data the chance of missing PTSS may increase (Grasso et al., 2009). This may be explained by parents and children experiencing shame and guilt whilst filling out questionnaires or participating in interviews, which could hinder disclosure of PTSS (Lemaigre et al., 2017).

In sum, our findings support implications from previous research that obtaining reports from multiple informants is preferable, as each informant brings important and different information to the table (Grant et al., 2020; Grasso et al., 2009; Romano et al., 2018; Van der Ende et al., 2012).

In addition, our results indicate that the mean impact of Child Posttraumatic Stress Symptoms based on longitudinal studies is stronger compared to the mean impact of Child Posttraumatic Stress Symptoms based on non-longitudinal studies. However, our results did not produce evidence for a true association for both mean effects, indicating no true difference. However, if more longitudinal studies could have been included, longitudinal studies as a moderator perhaps could have produced a true association. If PTSS remains high during treatment, children and their caregivers may be more likely to lose confidence and terminate the treatment. Therefore, it might be valuable to regularly assess the levels of PTSS, for example halfway throughout the treatment. In this way, when these symptoms remain high, the therapist can adjust the treatment protocol prior to children and their parents potentially terminating treatment, thus improving treatment durability (Kilbourne et al., 2018). However, it is possible that this finding is not necessarily associated with TF-CBT dropout, but rather is an issue that follows the distinction between longitudinal and cross-sectional studies, where longitudinal studies are more likely to have higher rates of dropout compared to cross-sectional studies, simply due to their study length.

**Sample Characteristics**

Moderator analyses showed smaller effects of Child Internalizing Mental Health Problems on TF-CBT dropout with the increase of the percentage of Caucasian children. However,
we must note that we could solely examine the percentage of Caucasian children in the sample as a potential moderator, because the samples of primary studies consisted largely of Caucasian children. We were therefore not able to examine percentages of different ethnicities.

We found that the effects of Child Internalizing Mental Health Problems for TF-CBT dropout were smaller if the sample consisted of children who experienced any kind of trauma compared to samples of children who specifically experienced trauma through CAN. When children enter trauma-focused therapies as a consequence of CAN, it is possible that they are distrustful or hold altered core beliefs about others and the world due to their prior abusive experience (Ormhaug & Jensen, 2016). This may lead to them being resistant or not open for trauma-focused treatment when the trauma surrounding the abuse is targeted. It might be possible that when the focus is shifted in the treatment, by for example, first processing other types of trauma, such as accidents, rather than the abuse trauma, children may first gain insight into trauma-focused treatments can in fact achieve. However, this is merely a speculation, as the analyzed studies did not specify which trauma was worked on first in treatment. More research is needed to determine if the order in which trauma is addressed in treatment impacts these effects.

Limitations

Our study had several limitations. The number of scientific studies focusing on dropout of children receiving in trauma-focused treatments is scarce. In many studies, data of participants who dropped out during the study were not taken into account in the analyses or were not compared to participants who completed the study. Also, there were studies examining multiple trauma treatments at the same time, but breaking down the data according to each treatment was not possible. Therefore, these studies were not eligible for the inclusion in this meta-analytic review, leaving us with a small number of eligible studies for our meta-analytic analyses. As a result, we based domains on a small number of studies and their effect sizes, and therefore statistical power was insufficient to properly detect effects, even small ones, and we should therefore be careful in generalizing results.

Furthermore, it must be noted that the way dropout was defined in the eight primary studies varied. Even though “definition of dropout” was not a significant moderator, differences in criteria for dropout used across primary studies make it more difficult to determine the mean effect sizes of potential risk domains of dropout.

In addition, in this review, we focused on the mean effect sizes of individual domains. We grouped each potential risk factor into one of ten separate domains, thereby making it impossible to examine which combination of domains may specifically predict dropout of trauma-focused treatment.

Lastly, the three-level approach to meta-analysis has been criticized for not always taking statistical dependency into account to a sufficient degree (Fernández-Castilla et al., 2020). Sometimes, a fourth or even a fifth level may be necessary to account for statistical dependency of effect sizes derived from studies that have been carried out by the same research group, in the same country, or under similar conditions. In our study, no fourth or fifth level could be included due to an insufficient number of studies.

Implications for Clinical Practice

Concluding, this meta-analytic review yields several suggestions for clinical practice. Our results can provide an array of risk factors for children at risk of dropping out of trauma-focused treatments after CAN, thus attempting to create a profile of risk factors. Our results add weight to the importance of monitoring Youth Alliance in treatment of PTSS, highlighting the role of the therapeutic relationship besides treatment protocols. As traumatized youth may, given their traumatic experiences, specifically struggle with themes such as trust and feelings of safety, it is worth the effort of monitoring their alliance with the treatment and therapist. Examining systemic conditions and gaining parental approval appear vital components of treatment success with traumatized youth. The importance of Youth Alliance in trauma-focused treatment also suggests the importance of giving clients a say in who will be their therapists.

In addition, our results highlight the importance of detailed assessments before treatment onset with the use of multi-informant reports and of multiple measurement moments during the course of treatment. In this way, efforts can be made timely when symptoms do not decrease, to avoid children and parents becoming hopeless and dropping of treatment.

Implications for Future Research

This meta-analytic review provides several important implications for the research field of trauma-focused treatment for children. Given the absence of literature on the association between putative risk factors for dropout and EMDR, we highlight the importance of conducting studies into that. Furthermore, we call for more research into the general field of dropout of children receiving trauma-focused treatments. In the future, when more primary studies on this topic have been conducted, this meta-analytic review can be replicated with a greater number of studies, facilitating more fine-grained moderator analyses (e.g., examination of complex interactions between risk factors for dropout), increasing statistical power and generalizing meta-analytic
results more safely. Moreover, we recommend future research to examine how dynamic variables, such as youth alliance, evolve during treatment, and whether this evolution may impact the chance of dropout. Lastly, we call future research to investigate whether specific components or modules of trauma-focused treatments pose a higher risk for dropout in comparison to other components of trauma-focused treatments.

**Conclusion**

This meta-analysis contributes to the literature on dropout of children from trauma-focused treatment, by providing a first overview of factors that can be regarded as risk factors for TF-CBT dropout in children, and specifically those who have experienced CAN. Remarkably, our systematic search only yielded studies examining risk factors for TF-CBT dropout and none regarding EMDR dropout. Our results showed that out of the ten examined domains, two were significantly associated with TF-CBT dropout and can therefore be regarded as risk domains. Specifically, we found a significant but small overall effect for the risk domain Demographic and Family Variables with static factors (e.g., child being male, lower parental education, CPS involvement or placement, having a minority status) and the risk domain Youth Alliance with dynamic factors (e.g., lower therapist-child support, more therapist-child difficulties, less therapist-rated youth alliance, and less youth perception of parental approval). These results imply that efforts directed at enhancing youth alliance in treatment may lead to less dropout from TF-CBT. Besides, our results suggest that static factors, such as low SES, make an already vulnerable population even more vulnerable for dropout. However, our findings also emphasize that much is still to be learned on what factors play a role in children dropping out of trauma-focused treatments. Some first implications for clinical practice can be derived from this review. Yet, for better insight in why children drop out of trauma-focused treatment, more primary studies of high quality are needed. Therefore, researchers in the field of child maltreatment, trauma-focused treatment, and treatment dropout are encouraged to dive further into this matter.

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**Data Availability** The data that support the findings of this study are available from the corresponding author, upon reasonable request.

**Declarations**

**Conflict of Interest** All authors declare that they have no conflicts of interest.

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