

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

# Child Abuse & Neglect

journal homepage: [www.elsevier.com/locate/chiabuneg](http://www.elsevier.com/locate/chiabuneg)

## Research article

# Posttraumatic symptoms among maltreated youth using classification and regression tree analysis



Emma H. Ross, Christopher A. Kearney\*

University of Nevada, Las Vegas, USA

## ARTICLE INFO

### Keywords:

Child maltreatment  
Re-experiencing  
Avoidance  
Hyperarousal  
Recursive partitioning

## ABSTRACT

Individual psychological factors have been shown to exacerbate risk for posttraumatic stress disorder (PTSD) symptoms in youth following maltreatment, but the novel contribution of the present study includes a focus on interactive relationships between these factors on specific PTSD symptom clusters. This study identified maltreated youth at highest risk for re-experiencing, avoidance, and hyperarousal symptom clusters via cognitive, affective, and demographic variables. Participants ( $n = 400$ ) included ethnically diverse maltreated youth. Classification and regression tree (CART) analysis, a form of binary recursive partitioning (BRP), identified subgroups of maltreated youth at highest risk for three core PTSD symptom clusters. Posttraumatic cognitions, anhedonia, negative mood, processing speed, and ethnicity best predicted re-experiencing symptoms. Depersonalization/derealization, verbal comprehension, sexual maltreatment, and age best predicted avoidance symptoms. Negative cognitions about self, IQ, dissociation, working memory, and posttraumatic cognitions best predicted hyperarousal symptoms. Core PTSD symptom clusters may thus be associated with unique collections of risk factors for maltreated youth. Clinical protocols for this population could be recalibrated to be more sensitive to specific profiles that more accurately identify highest risk maltreated youth and better inform evidence-based treatment practices.

## 1. Introduction

Research on child maltreatment and subsequent psychopathology has burgeoned over the past two decades. Maltreatment is associated with numerous negative sequelae such as peer rejection, delayed cognitive development, and higher rates of psychopathology (Bolger & Patterson, 2001; Veltman & Browne, 2001). In particular, maltreated youth are at greater risk for lifetime and current posttraumatic stress disorder (PTSD) and its core symptom clusters relative to non-maltreated peers (Kearney, Wechsler, Kaur, & Lemos-Miller, 2010). Primary PTSD symptom clusters include re-experiencing, avoidance, and hyperarousal, predictors of which among maltreated youth are the main focus of the present study.

Theoretical frameworks of PTSD symptoms in maltreated children have focused on specific variables that enhance risk for these symptom clusters following a traumatic event, often for purposes of tailoring evidence-based treatment (Berkowitz, Stover, & Marans, 2011). Understanding the interaction of these factors, particularly post-traumatic event cognitive and affective factors, has clinical implications for identifying those most at risk for PTSD as well as academic implications for confirming and disconfirming models of PTSD and its causes in specific populations such as maltreated youth (Trickey, Siddaway, Meiser-Stedman, Serpell, & Field, 2012). Key cognitive and affective risk factors that have been investigated in this regard, and that are described next, include negative

\* Corresponding author at: Department of Psychology, University of Nevada, Las Vegas, 4505 Maryland Parkway, Las Vegas, NV 89154-5030, USA.  
E-mail address: [chris.kearney@unlv.edu](mailto:chris.kearney@unlv.edu) (C.A. Kearney).

posttraumatic cognitions, dissociation, and depression (DiGangi et al., 2013). Demographic risk factors related to PTSD are discussed later as well.

Negative posttraumatic cognitions are a main aspect of a primary cognitive model of PTSD and often refer to negative beliefs and expectations about oneself or the world, or persistent distorted blame of self or others regarding the trauma or its sequelae (Hiskey, Ayres, Andrews, & Troop, 2015). Ehlers and Clark (2000) suggested that PTSD manifests when an individual appraises a traumatic event as highly threatening and displays re-experiencing and hyperarousal symptoms. These symptoms can lead to maladaptive coping strategies such as avoidance, rumination, and self-blame that further exacerbate the effects of the trauma. Youths with negative maltreatment-related cognitions may thus be likely to use faulty cognitive coping strategies to mitigate their distress and thus heighten risk for PTSD symptoms (Lancaster, Rodriguez, & Weston, 2011). In related fashion, negative posttraumatic cognitions can contribute to affective dissociative experiences such as depersonalization, derealization, and emotional numbing (Lanius, Paulsen, & Corrigan, 2014).

Dissociation may be a key risk factor for PTSD symptoms because trauma-related memories are not properly integrated into existing cognitive schemas (Kira, Lewandowski, Somers, Yoon, & Chiodo, 2012). Milot et al. (2013) suggested that maltreated youth in particular may utilize extended dissociation to cope with ongoing trauma, but that such practice may prevent them from properly regulating their emotions. Maltreated youth may also have difficulty interpreting the emotional expressions of others and have trouble coping with future stressors (Ford, 2005). Dissociation and negative posttraumatic cognitions may also be interactively linked to maltreatment-related PTSD symptoms via depression (D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012).

Depression, PTSD, and child maltreatment are closely connected (Dorahy et al., 2015). Risk of depression is twice as high among trauma-exposed persons with PTSD compared to those who do not develop PTSD (Breslau, Davis, Peterson, & Schultz, 2000). In addition, Kearney and colleagues have consistently found that maltreated youth with PTSD are at greater risk for depression than maltreated youth without PTSD, and this may be due to cognitive distortions and poor social support and coping strategies (Lemos-Miller & Kearney, 2006; Linning & Kearney, 2004). Ineffective efforts to control distressing, negative, posttraumatic thoughts as well as dissociation following trauma could also help produce depression (Barlow & Goldsmith, 2014; Palosaari, Punam & ki, Peltonen, Diab, & Qouta, 2016).

Demographic factors related to these cognitive and affective variables are also thought to influence a youth's risk for PTSD symptoms following maltreatment. Younger youth and those with lower IQ scores, for example, may have difficulty processing their traumatic experience effectively (De Bellis, Hooper, Spratt, & Woolley, 2009; Kolko et al., 2010). Conversely, trauma postpuberty confers significantly more risk for PTSD than trauma during infancy or preschool (Marshall, 2016). Ethnic minority youth may also be at heightened risk due to cultural values regarding family unity and collectivism that diminish maltreatment disclosure or help-seeking (Fluke, Yuan, Hedderson, & Curtis, 2003). Maltreated multiracial youth may be at risk for PTSD symptoms in particular (Kaur & Kearney, 2015). Female gender has also been linked to greater risk for PTSD among victims of sexual maltreatment, though limited research has evaluated the impact of gender on other forms of maltreatment-related PTSD (Walker, Carey, Mohr, Stein, & Seedat, 2004).

The extant literature on psychological risk factors for PTSD symptoms for maltreated youth is growing, but few studies evaluate multiple risk factors within this population at once. Researchers have examined general classes of predictor variables rather than specific constructs or PTSD symptom clusters (Nixon et al., 2010; Ross & Kearney, 2015). In addition, no research to date has evaluated the interactive relationships between identified predictors on specific clusters of PTSD symptoms using binary recursive partitioning techniques. The present study thus employed classification and regression tree (CART) analysis to identify subgroups of maltreated youth most at risk for re-experiencing, avoidance, and hyperarousal symptoms of PTSD. The primary research aim surrounded greater clarity about how salient cognitive, affective, and demographic variables, considered together, predict key aspects of PTSD in maltreated youth.

Cognitive variables included negative posttraumatic cognitions and its key domains (negative cognitions about self, negative cognitions about the world, self-blame) as well as Full Scale IQ (FSIQ) scores and indices (working memory, verbal comprehension, processing speed, perceptual reasoning) scores. Affective variables included depression and its key domains (ineffectiveness, anhedonia, negative self-esteem, interpersonal problems, negative mood) as well as dissociative domains (dissociative amnesia, absorption and imaginative involvement, depersonalization and derealization, passive influence). Demographic, individual variables included gender, age, ethnicity, and type of maltreatment experienced (sexual maltreatment, physical maltreatment, or neglect).

Specific risk factors for each PTSD symptom cluster (i.e., re-experiencing, avoidance, and hyperarousal) were expected to emerge. However, CART analysis is designed for atheoretical exploratory analyses, rather than testing a priori hypotheses (Kiernan, Kraemer, Winkleby, King, & Taylor, 2001). CART procedures are thus best applied toward generating, not testing, hypotheses via data partitioning (Markham, Young, & Doran, 2013). CART procedures are commonly used in public health studies to efficiently segment clinical groups into meaningful subgroups (Katz, 2011).

## 2. Method

### 2.1. Participants

Participants included 400 youth aged 7–18 years ( $M = 13.72$ ,  $SD = 2.39$ ) from Department of Family Services (DFS) facilities. These facilities were located within a large urban center that also served outlying rural areas. Participants were female (59%), male (37.5%), or transgendered (0.5%) (unavailable, 3.0%) as well as multiracial (25.8%), African American (24.8%), European American (24.5%), Hispanic (12.3%), Asian American (1.8%), Native American (2.0%), or other (1.8%) (unavailable, 7.2%). Participants were

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات