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#### Full Length Article

### Child maltreatment characteristics as predictors of heterogeneity in internalizing symptom trajectories among children in the child welfare system



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#### ABSTRACT

This study investigated heterogeneity in the developmental trajectories of internalizing symptoms among 541 children who were involved with the child welfare system and examined child maltreatment characteristics, including types, level of harm, and timing, as predictors of internalizing trajectory patterns. Secondary longitudinal research was conducted using data from the National Survey of Child and Adolescent Well-Being-I, collected from 1999 to 2007 in the United States. Three distinct trajectory groups were identified: high-decreasing; low-increasing; and low-stable Sexual abuse, emotional abuse, neglect, and more severe levels of harm from maltreatment predicted membership in two maladaptive groups compared to the low-stable group. The findings of the study suggest the importance of providing a thorough assessment of the type and severity of maltreatment experiences and continued monitoring of internalizing symptoms for children with child welfare involvement.

#### 1. Introduction

Substantial research has documented that children who experience maltreatment are at a greater risk of developing internalizing symptoms during childhood and adolescence (Appleyard, Yang, & Runyan, 2010; Bolger & Patterson, 2001). However, prior research reports that not all maltreated children develop internalizing symptoms and some children successfully achieve adaptive behavioral functioning despite their maltreatment experiences (Masten, Best, & Garmezy, 1990). These findings suggest that internalizing behavioral trajectories may be heterogeneous. Although studies have reported heterogeneous internalizing trajectories in the general population (e.g., Nivard et al., 2016), less is known about heterogeneity in patterns of internalizing trajectories among child welfare-involved children as well as how early maltreatment experiences may shape distinct patterns of internalizing trajectories. A better understanding of heterogeneity in internalizing symptom trajectories and its predictors is critical to design and implement interventions that promote positive development among high-risk children. Various maltreatment characteristics, such as maltreatment types and level of harm from maltreatment, may influence the developmental trajectories of internalizing symptoms. Therefore, this study aims to investigate heterogeneity in internalizing symptom trajectories among child welfare-involved children and to examine maltreatment characteristics (i.e., type, level of harm, timing) as predictors of trajectory group membership.

#### 1.1. Child maltreatment and internalizing symptoms

Internalizing symptoms are characterized by problems within the self, such as anxiety, depression, social withdrawal, or somatic

complaints (Achenbach, Edelbrock, & Howell, 1987). A robust body of literature indicates a significant positive association between child maltreatment and internalizing symptoms (e.g., Bolger & Patterson, 2001; Robinson et al., 2009). Although the concurrent association between child maltreatment and internalizing symptoms has been clearly established, much less attention has been paid to the longitudinal effects of maltreatment on internalizing symptoms. In addition, the existing longitudinal studies have yielded mixed findings (e.g., Appleyard et al., 2010; Thompson & Tabone, 2010). Some studies have suggested a short-term effect of child maltreatment on children's internalizing symptoms. In one study, for example, children's early maltreatment experiences (ages 0–6) were significantly associated with their internalizing symptoms at age 6, but not at age 8 (Appleyard et al., 2010). Similarly, another longitudinal study reported that the impact of maltreatment on internalizing symptoms, although strong at the initial assessment, decreased over the course of eight years in boys at risk of maltreatment (Godinet, Li, & Berg, 2014). Other studies, in contrast, have found a long-term, enduring effect. For instance, Lansford et al. (2002) found that physical abuse in the first five years of life was associated with increased internalizing symptoms during adolescence. Additionally, a delayed effect of maltreatment was found in one study where early alleged maltreatment (< age 4) was not concurrently associated with children's anxiety/depression, but was related to significant increases in anxiety/depression over time (Thompson & Tabone, 2010). The mixed findings from longitudinal empirical studies suggest that there may be individual differences in developmental trajectories of internalizing symptoms among maltreated children.

#### 1.2. Heterogeneity in internalizing symptoms of maltreated children

According to the developmental psychopathology perspective (Sroufe & Rutter, 1984), children's early life experiences and subsequent environmental challenges affect their developmental outcomes over a life course. Developmental psychopathology emphasizes that multiple contributors affect one's developmental outcomes and a myriad of pathways exist to adaptive or maladaptive behavior (Sroufe & Rutter, 1984). Therefore, similar negative experiences can result in various outcomes and pathways (Sroufe & Rutter, 1984).

A growing body of child maltreatment literature identifies distinctive externalizing trajectories within maltreated children, exploring why some individuals are more susceptible to serious behavioral symptoms while others remain relatively unaffected (Tabone et al., 2011). However, only a small number of studies have investigated heterogeneity in internalizing symptom trajectories and yielded mixed results (Kim, Cicchetti, Rogosch, & Manly, 2009; Lauterbach & Armour, 2016; Proctor et al., 2010). Proctor et al. (2010) examined heterogeneity in caregiver reported internalizing symptom trajectories over an 8-year period (from age 6-14) for 279 children living in a Southwestern suburban city in the United States, and identified three subgroups: stable adjustment, mixed/ decreasing adjustment, and increasing adjustment. Using caregiver ratings of anxiety/depression symptoms at ages 4, 6, 8, 10, 12, and 14, Lauterbach and Armour (2016) found four distinct anxious/depressed symptom trajectories (low-stable, moderate-stable, moderate-increasing, high-decreasing) among 1354 U.S. children who have experienced or are at risk of maltreatment. In contrast to these studies, Kim et al. (2009) found no evidence of heterogeneity in internalizing symptom trajectories from age 6-10 among 249 maltreated and 200 non-maltreated children who attended a summer research camp in a Northeastern urban city in the United States. Using camp counselors' ratings of internalizing symptoms, Kim et al. (2009) identified a single-class model as the best-fitting model for both maltreated and non-maltreated children. Possible explanations for the discrepancy in previous findings may include differences in study sample, developmental stage, study location (e.g., urban vs. suburban), informant (e.g., caregivers vs. camp counselors), operationalization of the outcome (e.g., anxiety/depression vs. internalizing symptoms), and other confounders affecting the outcome. The substantial differences in findings from prior studies suggest the need for further investigation of internalizing trajectories among maltreated children.

#### 1.3. Maltreatment characteristics and internalizing symptoms

Building on the developmental psychopathology perspective which highlights the importance of the nature and timing of the experience (Cicchetti & Toth, 1995), maltreatment experiences will have a different impact for an individual depending on the type, severity (i.e., level of harm), and timing of maltreatment. Some researchers have assessed how different forms of maltreatment may have differential impact on the development of internalizing and externalizing symptoms among children. Although study findings are not identical, some common themes have been revealed. In general, children who experienced sexual abuse (Tremblay, Hébert, & Piché, 1999) or neglect (Bolger & Patterson, 2001; Manly, Kim, Rogosch, & Cicchetti, 2001) were found to be at a higher risk of showing internalizing symptoms, whereas emotional or physical abuse were found to be more related to externalizing symptoms (Manly et al., 2001; Teisl & Cicchetti, 2008; Villodas, Litrownki, Newton, & Davis, 2016).

Studies have also examined the role of the child's age at the time of maltreatment and found contradictory findings. Some studies found no unique effect of the timing of maltreatment on internalizing symptoms (Jaffee & Maikovich-Fong, 2011; Robinson et al., 2009), whereas, others have indicated that children who experience maltreatment earlier in life exhibit greater levels of internalizing symptoms than children who experience maltreatment later in life (Keiley, Bates, Dodge, & Pettit, 2000; Kim & Cicchetti, 2010). For example, Kim & Cicchetti (2010) showed that earlier onset (0–36 months) of maltreatment, but not later onset ( $\geq$ 4 years), was associated with emotional dysregulation, which in turn led to later internalizing symptoms in school-aged children. In a sample of 578 children, early physical maltreatment (prior to age 5) was associated with greater levels of internalizing symptoms than physical abuse occurring at later periods ( $\geq$ 5 years) (Keiley et al., 2000).

Preliminary evidence supports the impact of the severity of maltreatment on internalizing symptoms. Manly et al. (2001) found that severity of physical neglect, particularly when it occurred during the preschool period, was associated with greater internalizing

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