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THE IMPACT OF TREATMENT EXPOSURE, TRAUMA, AND CAREGIVER
INVOLVEMENT IN THERAPY ON CHILDREN'S RESPONSE TO BEHAVIORAL
TREATMENT

by

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THE IMPACT OF TREATMENT EXPOSURE, TRAUMA, AND CAREGIVER INVOLVEMENT IN THERAPY ON CHILDREN'S RESPONSE TO BEHAVIORAL TREATMENT

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University of Nebraska, 2015

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Early childhood represents a time period during of rapid growth and development including physical development, language and communication, autonomy, and a wide variety of self-regulation skills (Campbell, 2006; Egger & Angold, 2006). Children vary in the rates at which they achieve these skills and they may challenge their parents through behaviors such as noncompliance and temper tantrums (Butler & Eyberg, 2006). Failure for children to adequately develop these basic skills can contribute to the development of behavior problems that lead to persistent problems throughout life (Whittaker et al., 2011). This study examined three factors that influence young children's response to a multicomponent community-based day treatment program for young children with externalizing behavior problems, including treatment exposure, prior exposure to trauma, and caregiver involvement in therapy.

Participants were 50 caregivers of children receiving services at one of three day treatment centers in the Midwestern United States. Data were collected at the three day treatment centers over a nine-month period. Caregivers interested and who consented to participate in the study completed four rating scales during one visit: Child Behavior Checklist (CBCL), Parent Daily Report (PDR), Trauma Events Screening Inventory-Parent Report Revised, Brief (TESI-PRR-B), and Treatment Evaluation Inventory, Short

Form (TEI-SF), which lasted approximately 30 minutes. A review of records provided information on pre-treatment externalizing symptoms (scores from the pre-treatment CBCL and pretreatment PDR measures) and demographic information.

Results indicated significant decreases in externalizing behaviors from Time 1 (pre-treatment) to Time 2 (concurrent treatment) on the CBCL and PDR. Results found no significant relation among the amount of time participants spent in treatment and decreases in externalizing behaviors on the CBCL or PDR. Participants with prior exposure to trauma presented with higher frequency of externalizing behaviors and experienced a greater decrease in externalizing behaviors. Finally, the current study provided preliminary evidence to support the hypothesis that level of caregiver involvement in treatment impacts reductions in externalizing behavior symptoms. Social validity data indicated high levels of caregiver acceptability of the day treatment program.

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CHAPTER 1

Introduction

The presence of severe externalizing behavior in early childhood can significantly impact a child's social and academic trajectory. Children with behavior problems such as noncompliance, aggression, impulsivity, and hyperactivity enter kindergarten with lower school readiness skills including speech and language skills, fine and gross motor skills, play skills, social skills, and early literacy skills (Montes, Lotyczewski, Halterman, & Hightower, 2012). In addition, children with behavior problems are more likely to underachieve academically (Bub, McCartney, & Willett, 2007; Grimm, Steele, Mashburn, Burchinal, & Pianta, 2010), are at-risk for alternative education placements, are more likely to receive special education services, and are at increased risk for school dropout (Snyder, 2001).

The development of behavior problems in young children can be conceptualized using a transactional or ecological developmental framework. These theories consider the direct and indirect impact of child, family, and cultural factors on cognitive, social, behavioral, language, and motor development (Campbell, 2002). Positive and negative developmental change is therefore the result of the bidirectional transactions between the child and his or her (1) biological makeup, (2) physical environment, (3) social environment, and (4) the culture into which he or she is born (Rutter & Sroufe, 2000; Schroeder & Gordon, 2002). There are multiple factors related to the individual child, the sociocultural context, the caregiver or caregiving environment, and the peer context that place a child at risk for the development of externalizing behavior problems (Deater-

Deckard, Dodge, Bates, & Pettit, 1998). When children are exposed to multiple risk factors within these domains, they are at greater risk for developing behavior problems (Rutter, 1979) and for their behavior problems to remain stable over time (Deater-Deckard et al., 1998; Morgan, Farkas, & Wu 2008).

Given the stability and significant impact of externalizing behavior problems on child outcomes, it is imperative for caregivers of children with severe externalizing behavior problems to receive effective evidence-based treatment. Early interventions for externalizing behavior problems include skills training approaches, school-based interventions, family-based interventions, and community-based programs (McMahon, Wells, & Kotler, 2006). Many of these approaches teach caregivers principles of social learning to develop effective parent-child interaction patterns, and teach caregivers behavior management skills. Day treatment programs are an alternative treatment approach that often incorporates components of the above treatment interventions. One example of a multi-component, community-based day treatment program for young children with externalizing behaviors is Behaven Kids (Peterson & Peterson, 2006). Behaven Kids aims to decrease child behavior problems and improve mental health and family functioning by providing a wide range of services for children and families. Research supports the day treatment program as an effective treatment for young children with externalizing behaviors (Burke, Kuhn, Peterson, Peterson, & Badura-Brack, 2010; McTate, Badura-Brack, Handal, & Burke, 2014). However, research has not examined factors that may impact the delivery of treatment including treatment characteristics (e.g., treatment exposure), child characteristics (e.g., prior exposure to trauma), and family characteristics (e.g., family involvement in therapy).

The current study sought to answer the following research questions regarding the multicomponent, community-based day treatment program: (1) Do child externalizing behaviors decrease while receiving treatment services? (2) Does the length of treatment services received, or treatment exposure (e.g., one month or less, or multiple months) influence the amount of change in participants' externalizing behaviors? (3) Does prior exposure to trauma impact the severity of participants' externalizing symptoms prior to receiving treatment? Do children with prior exposure to trauma experience decreases in externalizing symptoms? and (4) Does level of caregiver involvement in therapy (i.e., Low Involvement, Medium Involvement, or High Involvement) influence participants' response to treatment?

To examine the above research questions, data were collected at three multicomponent, community-based, day treatment centers over a nine-month period. Data collection consisted of four cycles with a two-month period elapsing between cycles. In addition, a one-day data collection booster session was implemented at each site due to difficulties with participant recruitment. Participants were recruited by posting flyers at each site one week prior to the data collection cycle. In addition, front desk staff at each site sent home letters informing caregivers about the study one week prior to each data collection cycle. Caregivers who were interested and who consented to participate in the study were asked to complete four rating scales during one visit: Child Behavior Checklist (CBCL), Parent Daily Report (PDR), Trauma Events Screening Inventory-Parent Report Revised, Brief (TESI-PRR-B), and Treatment Evaluation Inventory, Short Form (TEI-SF), which lasted approximately 30 minutes. Due to difficulty with recruitment, caregivers in Cycle 3, Cycle 4, and the booster session were also given the

option to complete the rating scales at home and return them to the day treatment center the following business day. Caregivers received a \$10 gift card to Target or Walmart when they returned the completed rating scales. Researchers conducted a review of records at the day treatment sites to gather information on pre-treatment externalizing symptoms (scores from the pre-treatment CBCL and pretreatment PDR measures) and demographic information.

Participants for the study included 50 caregivers of children with severe externalizing behaviors receiving treatment services from the day treatment centers. Results indicated significant decreases in externalizing behaviors from Time 1 (pre-treatment) to Time 2 (concurrent treatment) on the CBCL and PDR. Results found no significant relation among the amount of time participants spent in treatment and decreases in externalizing behaviors on the CBCL or PDR. Participants with prior exposure to trauma did present with significantly higher frequency of externalizing behaviors (on the PDR) and did experience significantly higher decrease in the frequency of externalizing behaviors. Finally, the current study provided preliminary evidence to support the hypothesis that level of caregiver involvement in treatment impacts reductions in externalizing behavior symptoms. Social validity data indicated high levels of caregiver acceptability of the day treatment program.

CHAPTER 2

Review of the Literature

Prevalence and Implications of Externalizing Behaviors in Young Children

While some externalizing behavior in early childhood is considered a normative aspect of child development, severe externalizing behaviors can significantly impact a child's social and academic trajectory. Externalizing behaviors include (1) noncompliance or defiance with adult and peer limit setting; (2) hostile and aggressive physical behavior toward others; and (3) impulsivity and hyperactivity (McMahon, 1994). This broad definition of externalizing behaviors can be grouped into conduct problems (e.g., oppositional behavior, conduct disorders, antisocial behavior) and attention problems (e.g., hyperactivity and impulsivity). In 2008, the National Scientific Council on the Developing Child estimated that 10 to 20% of preschool children demonstrated severe externalizing problems that place them at risk both socially and academically. Research indicates that this percentage is elevated for children from economically disadvantaged families (Barbarin, 2007). Unfortunately, it is estimated that 14 to 26% of young children meet criteria for a mental health disorder (Egger & Angold, 2006). These behavioral and emotional needs have increasingly resulted in young children being expelled from preschool. In fact, it is estimated that the national preschool expulsion rate is triple than that of kindergarten to 12th grade students with one state reporting an expulsion rate of 13 times higher than that of K-12 students (Gilliam, 2005). Of those children who are referred to clinical programs for treatment of severe behavior problems, almost half show persistence of symptoms well into elementary school (Campbell, 2002). Even more troublesome, research indicates that children with high

degrees of externalizing behavior problems are vulnerable to severe conduct problems in later childhood and adolescence and are also vulnerable to internalizing symptoms of anxiety or depression (Beyer, Postert, Muller, & Furniss, 2012) which can significantly impact life outcomes.

When these symptoms go unrecognized and untreated, children with severe emotional and behavioral needs are at an increased risk for a variety of adverse outcomes. Findings from multiple longitudinal studies identify negative correlations between early problem behavior and academic skills (Bub et al., 2007; Grimm et al., 2010). Children with behavior problems are more likely to underachieve academically and these academic difficulties are identifiable in the very early years. In a large-scale study using a U.S. national sample, Montes and colleagues (2012) found that preschool children with behavior problems entered kindergarten with deficient speech and language skills, fine and gross motor skills, play and social skills, and early literacy skills even after controlling for region and demographic data. Skills deficits for children with behavior problems were 0.6 to 1.0 standard deviation below scores of same-age peers without behavior problems. Additionally, parents of children with behavior problems were more than five times more likely to report that their children were not ready to start kindergarten. Beginning kindergarten with these skills deficits and behavior problems makes it more difficult for students to catch up to same-age peers. In fact, as children with behavior problems progress in school, they are at-risk for alternative education placements, special education services, and school dropout (Snyder, 2001).

These statistics demonstrate the significant impact of emotional and behavioral problems in early childhood on later academic, behavioral, and social outcomes. In order

to provide better treatment for young children with behavior problems, it is useful to understand how these behavior problems develop by considering specific factors that may place children at-risk.

Conceptualizing Behavior Problems Using a Developmental Framework

The development of behavior problems in young children can be conceptualized using a transactional or bioecological developmental framework. The transactional model (Sameroff, 2009) conceptualizes development as a continuous, dynamic process that is influenced by the bidirectional relation between an individual and his or her environment. Development is therefore continuously influenced not only by individual characteristics and environmental characteristics, but also by the interaction among those variables. The model stresses the role of the individual, and conceptualizes the individual as an active participant in his or her growth (Sameroff, 2009). Similarly, the bioecological model (Bronfenbrenner & Morris, 2006) views child behavior and learning as directly influenced by interactions between children and their environments (Bronfenbrenner & Morris, 2006). Within the ecological model, there are numerous environmental characteristics that affect child behavior. These are grouped into microsystemic influences or the immediate contexts in which a child functions (e.g., home, classroom); mesosystemic influences or the interrelationships among microsystems (e.g., home and school); exosystemic influences or contexts which influence microsystems but children do not typically directly interact (e.g., school board decisions); and macrosystemic influences, which are the overall cultural patterns which impact all other systems (e.g., No Child Left Behind Act of 2002). Ecological theory posits that human behavior is a

function of individual attributes (e.g., biological traits) and interactions between individuals and these systems (Bronfenbrenner & Morris, 2006).

Therefore, based on transactional and ecological theories, factors within the environment (e.g., child, family, school, and culture) influence the child both directly and indirectly; while simultaneously, the child influences factors within his or her environment. Together, these contribute to the development of cognitive, social, behavioral, language, and motor competence (Campbell, 2002). Positive and negative developmental change is therefore the result of the bidirectional transactions between the child and his or her (1) biological makeup, (2) physical environment, (3) social environment, and (4) the culture into which he or she is born (Rutter & Sroufe, 2000; Schroeder & Gordon, 2002). Given the extensive environmental factors and bidirectional nature of child development, it is no surprise that the development of behavior problems is complex. Children with similar histories may have very different developmental outcomes (i.e., multifinality), while children with similar outcomes may reach them through very different developmental pathways (i.e., equifinality; Cicchetti, & Rogosch, 1996).

The development of behavior problems is influenced by both risk factors (i.e., aspects of the child, environment, and culture that are associated with poor outcomes), and protective factors (i.e., aspects of the child, environment, and culture that are associated with positive outcomes; Garnezy & Rutter, 1983). The presence of risk factors result in an increased probability for the development of behavior difficulties, while the presence of protective factors result in a decreased probability for the development of behavior difficulties (Garnezy & Rutter, 1983). Importantly, a single risk

factor is not likely responsible for the development of a specific behavior problem. In fact, Sameroff and Siefer (1990) conclude that no single factor can be credited for the development of externalizing behavior problems in children. Rather, the relationship between risk factors and outcomes is nonlinear, which suggests that while a single risk factor has a small effect, the rate of externalizing behavior problems increases significantly with the accumulation of additional risk factors (Rutter, 1979). Furthermore, risk and protective factors do not influence behavior equally; some have a greater impact on behavior than others (Crews et al., 2007). Risk and protective factors can be grouped into categories that include child characteristics (e.g., physical health, temperament, and cognitive functioning), sociocultural characteristics (e.g., socioeconomic status, family structure, and caregiver stress), parenting and caregiving experiences (e.g., conflict within the home, psychological functioning of caregivers, supervision style, and caregiver discipline style), and peer-group experiences (e.g., stability in peer relationships, and social acceptance or rejection; Deater-Deckard et al., 1998). These various risk and protective factors interact over time to exacerbate or moderate the effects of stressful events. It is the accumulation of risk factors and the absence of protective factors that contribute to the development of behavior problems and later psychopathology.

Risk Factors

The development of externalizing behavior problems in children is elevated when children are exposed to multiple risk factors that are related to the individual child, the sociocultural context, the caregiver or caregiving environment, and the peer context (Deater-Deckard et al., 1998). Child risk factors that are associated with the development

of externalizing behaviors in young children include: medical problems, genetic disorders, being male, birth complications, difficult temperament, low cognitive functioning, poor self-esteem, (Schroeder & Gordon, 2002), language delays (Wakschlag & Danis, 2004), and early hyperactivity (McMahon & Frick, 2007).

Factors related to the sociocultural context that are correlated with externalizing behavior problems include: lower SES, single-parent home, presence of many children within a home, unplanned pregnancy, chronic poverty, poor social support, unemployment, urban environment, and a chaotic home environment (Schroeder & Gordon, 2002). The following caregiver factors are also considered risks for the development of externalizing problems: caregiver mental health difficulties (e.g., depression, schizophrenia), low cognitive functioning, limited education, unresponsive parenting style, low self-esteem, avoidant coping, hypercritical, inappropriate developmental expectations, poor supervision, presence of medical problems, and harsh discipline style (Schroeder & Gordon, 2002). Finally, factors related to peer relationships that have been associated with externalizing behavior problems include peer rejection (Deater-Deckard et al., 1998), bullying (Arseneault et al., 2006), and association with a deviant peer group (Fergusson, Swain, & Horwood, 2002). Association with a deviant peer group can lead to an increase in the frequency and severity of externalizing behavior problems and is a strong predictor of later delinquency (Fergusson et al., 2002). These risk factors are thought to be transactional in nature, in that a child's behavioral path is influenced by the child's characteristics, a child's interactions with responses from the caregiver, the caregiver's characteristics and responsiveness to the child, factors in the

broader caregiving environment, and the interaction among all of variables (Sameroff & Fiese, 2000).

Deater-Deckard and colleagues (1998) examined individual risk factors and cumulative risk on children's externalizing behaviors from early to middle childhood. Externalizing behavior problems were found to be stable over time and were related to both individual risk factors as well as the number of risk factors present. All four domains of risk (e.g., child factors, sociocultural factors, caregiver factors, and peer-related factors) were related to externalizing behavior problems. Higher externalizing problems were associated with the following factors: (1) child factors: being a boy, difficult temperament, medical problems; (2) sociocultural factors: lower SES, living with a single mother, higher child to adult ratio, teen pregnancy, unplanned pregnancy, stressful life events; (3) caregiver factors: non-maternal child care, lower father involvement, high parental conflict, exposure to violence, harsh discipline, physical abuse, lack of positive parenting, and maternal positive attitudes toward aggression); and (4) peer factors: peer rejection in kindergarten.

In a longitudinal study with a sample of 4,674 children, Morgan et al. (2008) examined risk factors (e.g., gender, ethnicity, socioeconomic status) that predicted kindergartener's likelihood of displaying externalizing and internalizing problems in third and fifth grades. Results indicated that children who were most at risk for externalizing behaviors in later grades were those who displayed high levels of externalizing problems in kindergarten, as well as children who displayed lower school readiness skills. In addition, results indicated that children who were Hispanic were at decreased risk for

externalizing problem behaviors. This study provides further evidence for the stability of untreated externalizing behaviors in young children.

Crews and colleagues (2007) conducted a meta-analysis examining risk and protective factors in the development of emotional and behavioral disorders. Results showed that the risk factors most highly correlated with externalizing behavior problems included a lack of school bonding, having delinquent peers, and having a comorbid internalizing disorder. Additional risk factors that were correlated with externalizing behavior problems included a history of antisocial behavior, low academic achievement, non-supportive home environments, and corporal punishment by caregivers. Factors that showed little association with externalizing behavior problems included minority status, being male, having a neglected sociometric status, having nonsevere pathology, having poor social skills, and low socioeconomic status.

While research results vary regarding the specific risk and protective factors for the development of externalizing behaviors in young children, findings consistently show that without effective intervention, these behaviors remain stable over time and have a significant impact on child outcomes. Thus, it is imperative for children and families with multiple risk factors for externalizing behavior problems to receive effective evidence-based treatment.

Treatment of Externalizing Behavior Problems in Young Children

Early intervention is important for young children with externalizing behavior problems due to their increased risk for maintaining these behaviors, the stability of these behaviors over time (Anselmi et al., 2008; Deater-Deckard et al., 1998), and their increased risk for developing more severe behavior problems (Campbell, Shaw, &

Gilliom, 2000; Webster-Stratton, 1997). Because research suggests that contingent and appropriate caregiver responses to child behaviors play a central role in the development and maintenance of positive child behaviors (Schroeder & Gordon, 2002), many early intervention programs teach caregivers principles of social learning, effective parent-child interaction patterns, and behavior management skills. Examples of treatment approaches for externalizing behavior problems include skills training approaches, school-based interventions, family-based interventions, and community-based programs (McMahon et al., 2006).

Skills Training Approaches

Skills training programs emphasize remediating the skill deficiencies and dysfunctions displayed by children with externalizing behavior problems. The foci of these interventions may include social skills, cognitive-behavioral skills, problem-solving skills, and anger management training (McMahon et al., 2006). Social skills training programs aimed at decreasing externalizing behaviors in young children are based on the assumption that conduct problems are learned and lead to deficits in the social skills necessary to interact appropriately with others (Schroeder & Gordon, 2002). Children who display such social skill deficits engage in problem behavior to receive rewards from their social environment (McMahon et al., 2006). Social skills programs use modeling, role playing, and coaching, to provide participants with feedback and practice on the use of appropriate social skills. While research supports the fact that children with externalizing behaviors have social skill deficits (Walker, Ramsay, & Gresham, 2004) and social skills training programs do result in increased social skills (Gresham, Cook, Crews, & Kern, 2004; Harrell, Mercer, & DeRosier, 2009), there is no evidence that

social skills training alone modifies externalizing behaviors to a clinically significant degree (Harrell, Mercer, & DeRosier, 2009; Taylor, Eddy, & Biglan, 1999).

Interventions targeting cognitive skills have also been used to treat children with severe externalizing problems due to their deficits in social cognition and social information processing (Schroeder & Gordon, 2002). Cognitive and cognitive-behavioral skills interventions are based on the assumption that when children with conduct problems encounter an anger-provoking or frustration-arousing event, their emotional, physical, and behavioral reactions are determined by their cognitive perceptions of that event rather than the event itself (Dodge, 2003). In fact, children who demonstrate significant conduct problems have been shown to have deficits in encoding social information, attend more to aggressive stimuli, lack empathy, are deficient in social problem-solving skills, frequently attribute hostile intent, and lack awareness of the consequences of their behavior (Dodge & Petit, 2003; Ziv, 2012). The goal of cognitive skills training programs is to remediate these social cognitive deficits. Research supports the use of cognitive-behavioral skills training programs for improving social-cognitive skills (Spence, Donovan, & Brechman-Toussaint, 2000); however, there is little evidence for their long-term effectiveness in decreasing externalizing behaviors when used as the sole treatment (Hudley et al. 1998). An important consideration for working with young children with severe externalizing behaviors is their cognitive developmental level. Cognitive techniques that aim to restructure or teach problem solving are often beyond the cognitive capacity of young children (Cohen et al., 1981) and have not yet proven effective in decreasing disruptive behavior in preschool children (Campbell, 2002).

Interventions targeting problem-solving skills and anger management skills are heavily influenced by the cognitive-behavioral model of treatment for externalizing behavior problems in children (McMahon et al., 2006). Problem-solving skills interventions emphasize teaching skills for problem identification, solution generation, solution selection, and enactment of the solution (Kazdin, Esveldt-Dawson, French, & Unis, 1987; Kazdin, 2003). Interventions targeting anger control focus on teaching skills to manage anger arousal in problem situations (McMahon et al., 2006) and often use modeling, role-play, reinforcement, and feedback techniques. In addition, many anger control programs teach children the problem solving model and strategies for increasing awareness of feelings and physiological states (e.g., Coping Power; Lochman, Wells, & Lenhart, 2008). Research examining the sole impact of problem-solving interventions and anger control interventions in preschool children is limited. Cole and colleagues (2008) examined preschool children's emotional regulation abilities by assessing their skills to identify and stop or redirect feelings of intense anger or sadness. Results indicated that 4-year-old children recognized and generated strategies for feelings of anger more than 3-year-old children, but both age groups were similar in recognition and strategy generation for feelings of sadness. These results indicate that anger management interventions may be effective in decreasing anger in children ages four and older; however, research is needed to examine the effectiveness of anger management interventions in early childhood.

School-Based Interventions

Many children with significant externalizing behavior problems display these problems in multiple settings including the home and the school. Often, when treatment

is provided in the home or clinic setting, treatment effects fail to generalize to the school setting (McMahon et al., 2006), indicating the need for school-based interventions.

School-based interventions for externalizing behavior problems include classroom management strategies (e.g., establishment of rules and directions; implementing teacher praise for appropriate behaviors; rewarding prosocial behaviors; implementing class-wide contingencies or reinforcement systems; and changing teacher behavior; McMahon et al., 2006), home-based reinforcement programs or home-school collaboration interventions (Malti, Ribeaud, & Eisner, 2011) and function-based treatments for individual children (Greer et al., 2013). School-based interventions that focus on classroom management strategies have had mixed results; however, research generally indicates that classroom management strategies are most effective when positive and negative approaches to contingency management are combined (Walker et al., 2004). Functional analyses used to develop individualized treatments for externalizing behaviors in preschool settings have been shown to be effective both in determining the function of individual children's problem behaviors, as well as aiding in treatment (Greer et al., 2013). However, as Greer and colleagues (2013) discuss, there are many limitations for functional analyses conducted in school settings that may decrease the effectiveness of interventions including degradations in treatment integrity, uncontrolled sources of influence for reinforcement (e.g., peer responses), and the limited feasibility of functional analyses in most school settings (i.e., the analysis and intervention requires resources that many schools are unable to provide to large numbers of children.)

In addition, school wide programs targeting social-cognitive development, positive social behavior, and understanding emotions (e.g., PATHS prevention program)

have been successful in decreasing teacher ratings on student aggression and increasing teacher ratings on prosocial behavior (Bierman et al., 2010). These effects are even more powerful when implemented with a home-component. For example, with a participant sample of 1,675 first grade students, Malti and colleagues (2011) implemented the PATHS program for the prevention of externalizing behavior at school, while simultaneously implementing the Triple P Program (Positive Parenting Program; Sanders, Markie-Dadds, & Turner, 2003) to address externalizing behavior at home. Results indicate a long-term effect on teacher and parent-rated externalizing behavior at a two-year follow up. Taken together, these results indicate that schools can be a powerful and influential setting for the treatment of externalizing behavior problems in young children.

Family-Based Interventions

Family-based interventions for the treatment of externalizing problems in children have typically presumed that the family is a system and the child's negative behavior serves an adaptive function for the family (Schroeder & Gordon, 2002). The underlying assumption is that parenting skills deficits are partly responsible for the development and maintenance of the children's behavior problem (McMahon et al., 2006). In family-based interventions, the intervention is conducted primarily with the primary caregivers and therapists have less individual contact with the child. Additionally, there is an emphasis on prosocial goals rather than behavior problems (McMahon et al., 2006). Programs often consist of the following: (a) training in defining, monitoring, and tracking child behavior; (b) positive reinforcement procedures and training in positive parent attention; (c) the use of token systems or point systems; (d) extinction and delivery of consequences (e.g.,

ignoring, response cost, time out); (e) training in giving clear commands; and (f) training in problem solving. Family-based interventions have been effective in decreasing externalizing behaviors in young children and have been successfully implemented in clinic and home settings, with individuals as well as groups (McMahon et al., 2006). Thomas & Zimmer-Gembeck (2007) conducted a meta-analysis examining the efficacy of two widely used family-based behavioral interventions for children with externalizing behaviors, Parent-Child Interaction Therapy (PCIT) and Triple P-Positive Parenting Program. After reviewing 24 studies, findings indicated large effect sizes for PCIT, moderate effect sizes for Abbreviated PCIT, medium and large effect sizes for Enhanced Triple P, and medium effect sizes for Standard Triple P. In general, the meta-analysis indicated decreases in parent-reported child behavior problems. Furthermore, Piquero and colleagues (2009) found that early family intervention or parent training not only reduced behavior problems in young children, but that these effects maintained across time reducing delinquency and crime in later adolescence.

Program characteristics and family factors have been identified that are associated with more positive outcomes. Family interventions with the most positive impact on caregiver-child interaction and with long-term efficacy go beyond strict reinforcement contingencies to address other aspects of family functioning (Campbell, 2002). The more successful programs teach parents to use contingent, descriptive, and specific praise; use planned ignoring; use time-out for aggressive and destructive behaviors; aim to decrease criticism and vague commands; involve direct observations of parent-child interactions; and involve role playing, coaching, and feedback (Campbell, 2002).

Community-Based Programs

Research on community-based treatment programs for youth with conduct problems emerges from the development and evaluation of programs for aggressive and delinquent adolescents. As awareness shifted from remediation of adolescent delinquent behavior to prevention of delinquent behavior, community-based programs targeting conduct problems in younger children were created and researched. Community-based programs are based on the idea that the well-being of children and families can be improved through programs that target family life, cognitive development, and social development by emphasizing adaptive functioning rather than psychopathology (Campbell, 2002). Examples of community-based programs include multidimensional treatment foster care, community-based parenting programs, and day treatment programs. Community-based programs often use multiple treatment components to address conduct problems including skills training, family involvement or parent training, and cognitive-behavioral skills training.

Research on community-based programs for young children with externalizing behaviors is limited; however, evidence suggests that these programs are effective in decreasing externalizing behaviors leading to more positive long-term outcomes for children (Augimeri, Farrington, Koegl, & Day, 2007). In fact, when comparing the effects of a community-based parenting program to an individual clinic-based parent training program for pre-kindergarteners with conduct problems, Cunningham, Bremner, and Boyle (1995) found greater improvements in behavior problems in children in the community-based group and better maintenance at a 6-month follow-up than children in the individual clinic-based group. In addition, researchers concluded that the community-

based treatment group was more than six times as cost effective as the individual parent-training group. While these studies show promising results, future research is needed to (a) evaluate the effectiveness of community-based programs with younger children with externalizing behavior problems; (b) include participants with various mental health diagnoses, not just at-risk populations; and (c) evaluate factors that contribute to the effectiveness of the treatment program (e.g., treatment components, characteristics of the child or family, treatment duration.)

Day Treatment Programs

For decades, day treatment programs have been offered as an alternative treatment approach to in-patient treatments and less-intense outpatient treatments (Sayegh & Grizenko, 1991). The day treatment program has been credited as a balance between the extremely expensive in-patient programs and the less-intensive outpatient treatments that are unable to provide the level of treatment necessary for children with severe behavioral challenges. Research comparing day treatment programs to residential programs found that day treatment programs are equally effective in reducing problem behaviors in children seven to 12 years of age (van Bokhoven et al., 2005). Day treatment programs are less costly, less restrictive, maintain contact with a child's home environment (Whitemore, Ford, & Sack, 2003) and are effective in decreasing problem behaviors (van Bokhoven et al., 2005). Thus, day treatment programs are viewed as a positive alternative to residential placement.

There have been a handful of research studies that have examined day treatment programs for young children with severe disruptive behaviors (e.g., Burke et al., 2010; Clark & Jerrott, 2012; Jerrott, Clark, & Fearon, 2010; McTate et al., 2014). These studies

have consistently found significant improvement in behavior among young children with severe behavior problems using multi-modal, intensive, and evidence-based treatment techniques. In addition, treatment gains have been shown to be maintained over a two-and-a-half to four year follow-up (Clark & Jerrott, 2012). Day treatment programs have not only shown improvement in child behavior, but have shown decreases in parenting stress (Clark & Jerrott, 2012), increases in social skills and increases in family functioning (Grizenko, Papineau, & Sayegh, 1993).

One example of a local community-based, multi-component day treatment program for young children with severe externalizing behavior problems is Behaven Kids. While the Behaven Kids model is a community-based intervention that emphasizes behavioral principles, the model incorporates multiple components of skills training interventions (e.g., social skills, cognitive skills, problem-solving skills, anger management) and family-based interventions, creating a multi-component program. The day treatment program in this study is an independently-owned program designed to decrease child behavior problems and improve mental health and family functioning. The treatment centers offer a wide range of services to children and families experiencing significant child behavior difficulties. Services include: (1) a specialized day treatment program for children ages 18 months to nine years; (2) individual and family outpatient therapy for children and adolescents; (3) family therapy; and (4) in-home behavior management coaching. Behaven Kids requires very low child-to-staff ratios, licensed family therapists and clinical psychologists on staff, and professionally trained employees to meet the unique needs of each family. Children enrolled in the Behaven Kids specialized day treatment program must attend for at least 6 hours a day and participate in

individual and family therapy. Services are considered a form of mental health treatment and often are reimbursed through insurance. Behaven Kids aims to decrease behavioral problems and increase mental health in children by using evidence-based behavioral strategies, like those outlined above, and by providing caregivers with the skills to use these strategies at home.

Research from two case studies indicated that children experience significant decreases in child behavior problems as a result of services from Behaven Kids (Burke et al., 2010). Burke and colleagues (2010) examined pre- and post-treatment scores on the *Child Behavior Checklist (CBCL; Achenbach, 1991)*, as well as compliance with following directions for two children: one child with severe internalizing difficulties and one child with severe externalizing behaviors. Post-treatment data indicated both children experienced significant decreases in internalizing and externalizing behaviors, as well as increased compliance with following directions. While these findings are important and provide support for the Behaven Kids model, the single-case design lacks generalizability and requires replication. McTate et al. (2014) further examined treatment services at Behaven Kids using the CBCL and found statistically and clinically significant decreases in externalizing and internalizing symptoms with 147 participants with the following mental health diagnoses: bipolar disorder, attention deficit hyperactivity disorder, oppositional defiant disorder, and adjustment disorder. These findings support the Behaven Kids model as effective in decreasing internalizing and externalizing symptoms in young children. However, findings are not sufficient to understand how individuals may differ in their response to intervention. Research specific to the day treatment

program has not yet examined factors that may impact child response to treatment including treatment characteristics, child characteristics, and family characteristics.

Factors that May Influence Treatment of Externalizing Behaviors

Research on skills training approaches, school-based interventions, family-based interventions, community-based programs, and multi-component treatments have shown varying positive results in decreasing externalizing behaviors in young children.

However, specific factors that may influence children's response to treatment have not yet been examined. Many different factors can influence the success of treatment, depending on the treatment provided. Specific variables that may impact response to treatment of a multicomponent, community-based day treatment program include treatment integrity or exposure to treatment services, prior childhood exposure to trauma, and caregiver involvement in therapy.

Treatment Integrity

Treatment of early childhood externalizing behaviors not only varies by the type of skills targeted and individuals involved in treatment, but also varies by characteristics specific to the delivery of treatment. Treatment integrity, a multidimensional construct, reflects the degree to which clinicians deliver an intended treatment and the extent to which participants receive and interact with treatment components (Schulte, Easton, & Parker, 2009). Dimensions of treatment integrity include (1) adherence, or the extent to which specific program components are delivered; (2) exposure, or the number, length, or frequency of sessions; (3) quality of delivery, which refers to the qualitative aspects of the intervention; (4) participant responsiveness, which refers to the degree of engagement

in the intervention; and (5) program differentiation, or the identification of distinguishing program components (Dane & Schneider, 1998).

Treatment integrity is an integral aspect of intervention research and strongly influences research outcomes and the implementation of interventions in practice. An awareness of the intervention components that are delivered and how they are delivered is necessary to accurately interpret research outcomes (Durlak & DuPre, 2008). Without documentation of which components were implemented or how well they were implemented, it is impossible to attribute the observed changes in the dependent variable to the independent variable (Peterson et al., 1982). Extensive research has shown that higher levels of treatment integrity generally lead to better outcomes (Durlak & DuPre, 2008; Wilson, Lipsey, & Derzon, 2003). The second dimension of treatment integrity, treatment exposure, is of specific interest to the proposed study.

Treatment exposure. Treatment exposure refers to the frequency with which intervention sessions are provided, the duration of sessions, and the duration of the overall intervention (Dane & Schneider, 1998). Treatment exposure can have a large impact on the outcomes of a treatment. If an intervention is not delivered as often as intended, or is provided for a shorter duration, treatment effects may not be as powerful. For example, Zvoch (2012) used multilevel modeling procedures to examine multiple dimensions of treatment integrity for a summer school program, including treatment exposure. Results indicated that students with higher weekly attendance at summer school tended to have better than expected reading fluency performance at each assessment point. Therefore, greater treatment exposure resulted in better outcomes.

In addition, when comparing the effectiveness of standardized PCIT and abbreviated PCIT in a meta-analysis, Thomas and Zimmer-Gembeck (2007) found results favoring the standardized, longer version. Standardized PCIT consisted of 12 face-to-face sessions while abbreviated PCIT consisted of 5 face-to-face sessions with alternating 30 minute telephone consultations. Effect sizes were large for parent-reported child behaviors for standardized PCIT and effect sizes were moderate for abbreviated PCIT. These results indicate that treatment exposure (i.e., frequency of sessions, duration of sessions, and duration of intervention) may impact treatment outcomes and should be monitored in intervention evaluation research. Zvoch (2012) recommends investigating whether a dosage variable is predictive of intra- and inter-individual outcome variation in evaluation settings where individual performance is tracked over time. For example, in the proposed study, individual performance is tracked over time using multiple measures of externalizing behaviors (e.g., Child Behavior Checklist, Parent Daily Report). The proposed study sought to examine the impact of exposure (i.e., treatment length) on individual treatment outcomes, specifically participants' externalizing behaviors.

Exposure to Trauma in Early Childhood

Definition and Prevalence. Exposure to a traumatic event, or multiple traumatic events, in early childhood can significantly impact children's behavior and children's response to treatment. The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-V; American Psychiatric Association, 2013) defines an extreme traumatic stressor as the "direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or threat to the physical integrity of another person; or

learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate” (pp. 463). These events can be sudden, terrifying, shocking, and potentially life threatening. Cohen, Mannarino, and Deblinger (2010) describe 12 examples of traumatic experiences to which children might be exposed: physical abuse, sexual abuse, domestic violence, community violence, traumatic deaths, serious accidents, natural or other disasters, fires, bullying, war, terrorism, and medical traumas.

Exposure to traumatic events in early childhood is increasingly common and has been referred to as a silent epidemic (Kaffman, 2009), emphasizing the often-unrecognized prevalence and potential lifelong impact of trauma. According to the U.S. Department of Health and Human Services (2015), in 2013 there were 678,932 substantiated cases of child abuse and neglect with 1,484 fatalities resulting from maltreatment. Locally, in Nebraska, there were 4,309 victims of child maltreatment in 2013, including both duplicate victims and first-time victims (U.S. Department of Health and Human Services, 2015). The participant population specific to the current study includes children who have been exposed to traumatic events including, but not limited to the following: (1) 75% of children at Behaven Kids have a family history of caregiver substance abuse; (2) 33% have a history of prenatal exposure to alcohol, drugs, or tobacco; (3) 33% have a history of one or more types of maltreatment; and (4) 10% have a history of multiple home placements (Peterson & Peterson, 2011).

Complex Trauma. Trauma experienced by children can be isolated (i.e., occurring only one time) or chronic (i.e., recurring) in nature. Researchers use the term “complex trauma” to describe multiple, chronic, and prolonged adverse traumatic

experiences (van der Kolk, 2005). Often, complex trauma involves the simultaneous or sequential occurrence of maltreatment and domestic violence, beginning in early childhood (Cook, Blaustein, Spinazzola, & van der Kolk, 2003) with effects extending through childhood, adolescence, and adulthood (Cook et al., 2005). Recent findings from the National Child Traumatic Stress Network (NCTSN) Core Data Set (CDS) indicated high rates of multiple traumatic exposures among children and adolescents. In fact, of those who reported trauma exposure, 77% reported exposure to more than one type of trauma, 27% reported exposure to three to four types of trauma, and 31% reported five or more types of trauma (Briggs, Fairbanks, Greeson et al., 2012). Findings from the NCTSN CDS also demonstrated that with the accumulation of traumas over time, children were likely to demonstrate clinically significant levels of both internalizing and externalizing behavior difficulties (Greeson et al., 2014). Each additional trauma type endorsed significantly increased the odds for scoring above the clinical threshold on the Child Behavior Checklist (CBCL).

Risk factors. There have been several risk factors identified for trauma exposure. Lifetime exposure for traumatic events was found to be higher among European Americans than among African Americans, and among more men than women (Norris, 1992). Cox, Kotch, & Everson (2003) identified low parental socioeconomic status as a risk factor for trauma exposure among adolescents. In addition, Foster et al. (2004) identified males as being at greater risk for exposure to physical assault and witnessing community violence while females were at greater risk for experiencing sexual victimization.

Impact of trauma exposure on childhood behavior. Exposure to trauma in childhood can significantly impact neurological, physiological, and psychosocial systems that contribute to mental and physical health impairments (Turner et al., 2012) and is associated with a number of immediate emotional, behavioral, cognitive, social, and physical adverse outcomes. Responses to trauma can differ greatly on the type of trauma experienced, with individuals exposed to more complex trauma having the most adverse outcomes.

Following trauma exposure, children may develop problems of affect (e.g., sadness, fear, anxiety, anger, affect regulation), problems of behavior (e.g., avoidance behaviors, aggression, reenactment of the trauma, regressive behaviors, separation anxiety, sleeping problems, and noncompliance), and problems of cognition (e.g., cognitive distortions, self-blame, feelings of shame, negative cognitive style, poor self-efficacy, and a distorted locus of control; Cohen & Mannarino, 2008). Problems with affect, behavior, and cognition can develop into serious long-term psychological difficulties including various mental health diagnoses (e.g., Separation Anxiety Disorder, Oppositional Defiant Disorder, Phobic Disorders, Attention Deficit Hyperactivity Disorder, and PTSD; Ackerman, Newton, McPherson, Jones, & Dykman, 1998). Specific to the population in the proposed study, 75% of children receiving services at the multicomponent, community-based, day treatment programs have a mental health diagnosis for one or more of the following externalizing disorders: oppositional defiant disorder, disruptive behavior disorder not otherwise specified, and attention deficit hyperactivity disorder (Peterson & Peterson, 2011).

Trajectory for trauma exposure and severe externalizing behaviors.

Research shows that children who have been exposed to trauma present with more externalizing behavior problems than those not exposed to trauma (Kim & Cicchetti, 2003; Milot, Ethier, St-Laurent, & Provost, 2010). Findings of a recent mediation analysis indicated that trauma symptoms mediate psychosocial adjustment in the context of maltreatment in preschool children (Milot, et al., 2010). Thus, trauma-related symptoms that result from early exposure to traumatic experiences constitute a mechanism in the development of behavioral problems in preschool children. If trauma symptoms play a mediating role in the development of behavior problems, then treatment of behavior problems in preschool children who have been exposed to trauma should also include and target trauma symptoms. Research examining the effectiveness of treatment for young children with externalizing problems and trauma symptoms is limited. Rather, much of the literature on treatment programs for children exposed to trauma focuses on older children or adolescents. Two interventions for children who have experienced trauma that have been examined with a preschool population are Parent Child Interaction Therapy (PCIT; McNeil, & Hembree-Kigin, 2010) and Child Parent Psychotherapy (CPP; Lieberman & Van Horn, 2005).

Parent Child Interaction Therapy was developed for children between the ages of three and seven with externalizing behavior problems. Caregiver-child dyads are observed and their interactions are assessed. Caregivers are then coached to attend to their child's behaviors in a consistent and predictable manner. Skills taught include behavior management strategies that focus on using positive reinforcement to reduce

oppositional and disruptive behaviors, while increasing consistency in parents' use of effective consequences for negative behaviors.

While PCIT was developed for children with externalizing behavior problems, and has shown effective in reducing externalizing problems (Thomas & Zimmer-Gimbeck, 2007), Thomas (2012) used a standard 12-session version of PCIT to examine the intervention's effectiveness with children who had experienced maltreatment. Participating parents were referred by child protective services and were classified as having engaged in child maltreatment. Type of maltreatment was not specified. Risk was determined by the following factors: high levels of parent distress, inappropriate discipline strategies, and aggressive communication. Outcomes for children and caregivers were compared using the standard 12-session PCIT treatment group and a wait-list control group. Findings supported the use of the standard 12-session PCIT intervention with children exposed to trauma. Caregivers reported decreases in their children's externalizing and internalizing behaviors as well as a decrease in parenting stress. These results provide support for PCIT as an effective treatment for children with externalizing behaviors and who have been exposed to trauma.

CPP is a treatment program for young children with, or at-risk for developing mental health difficulties who have been exposed to traumatic events. In the parent-child dyadic model, the therapist educates and guides parents' understanding of how trauma is impacting their child and teaches skills to respond to and nurture their child during play. Developmentally appropriate toys are chosen that elicit dramatic play and foster social interaction between the child and parent. The following domains of functioning are addressed in treatment: play, sensorimotor disorganization, fearfulness, recklessness,

endangering behavior, aggression, punitive parenting techniques, and the relationship with the perpetrator.

Research has examined the impact of CPP on children exposed to domestic violence. Lieberman, Van Horn, and Ghosh Ippen (2005) compared the efficacy of CPP to “treatment as usual” with 75 children ages three through five who were exposed to domestic violence. Participants were randomly assigned to either the treatment group (i.e., CPP) or control group (i.e., treatment as usual) and attended weekly sessions for one year. Children in the treatment group improved significantly more than those in the control group as trauma symptoms decreased and overall behavior problems decreased. While CPP has shown positive results in children who have been exposed to domestic violence, additional research is needed to examine the impact of CPP with children exposed to other types of trauma as well as complex trauma.

While results from initial research examining PCIT and CPP for traumatized children with externalizing behaviors are promising, these studies focused on children who were maltreated and children who witnessed domestic violence. Additional research is needed with children who have experienced various types of trauma, including multiple exposures. Therefore, the proposed study sought to examine (a) whether children with a history of trauma exposure presented with greater externalizing behavior symptoms prior to starting treatment and (b) whether externalizing behavior symptoms decreased in children with prior exposure to trauma after receiving treatment services at a multicomponent community-based day treatment program.

Family Involvement in Treatment

Given that young children have a very restricted ability to impact significant change over their own behavior and their environment, effective treatment for externalizing behaviors in young children must include primary caregivers. Primary caregivers are young children's first teachers, are around young children most often, and therefore have the greatest potential to impact their behavior. Research has shown that family involvement has a powerful influence on student achievement and is associated with gains in early literacy skills in preschool (Hindman & Morrison, 2012; Hindman, Skibbe, Miller, & Zimmerman, 2010) as well as reading and math achievement in kindergarten (Galindo & Sheldon, 2012). Decades of research confirms that family involvement influences student achievement across grades (Desforges & Abouchaar, 2003; Sheldon, Epstein, & Galindo, 2010).

While research supports the positive impact of family involvement in education on academic achievement, research on family involvement in therapy remains less studied. Still, there is general consensus that multimodal, family-focused interventions are needed to address the complex nature of early onset behavior problems (Miller & Prinz, 2003; Patterson, 1986). Research by Kazdin (1996) indicates that successful outcomes for the treatment of early-onset conduct problems are strongly linked to family engagement in therapy. Moreover, research shows that higher rates of parent attendance and parent engagement in cognitive behavioral therapy sessions are associated with greater outcomes for youth in therapy for anxiety symptoms (Podell & Kendall, 2011). Problems with family engagement in therapy may include sporadic attendance,

incomplete assignments, limited participation in sessions, and early termination (Kazdin, 1996).

While treatment at the multicomponent community-based day treatment centers strives to include families in the treatment process by offering and providing outpatient family therapy services, families vary in their level of commitment to and involvement in therapy. For example, families vary across many dimensions including attendance for therapy sessions, level of active participation in therapy sessions, level of engagement in therapy, and level of implementation of therapist recommendations. The current study sought to determine how families differ in their level of involvement in therapy and to determine whether the level of family involvement in therapy impacts children's response to treatment.

Purpose

As reviewed in the previous sections, severe externalizing behavior problems in young children have the potential to result in a wide range of negative long-term outcomes, stressing the need for effective early intervention programs. Common early intervention programs include social skills training, cognitive skills training, family therapy, school interventions, and behavioral parent training, the latter of which is the most extensively researched. Findings from the literature that examine the effectiveness of behavioral parent training on the treatment of externalizing behavior problems in young children generally indicate improvement in externalizing behavior symptoms. Likewise, research specific to the multicomponent community-based day treatment program, Behaven Kids, indicates an overall decrease in externalizing behavior problems

(Burke et al., 2010). However, research has not evaluated specific variables that may impact children's response to treatment at the day treatment centers.

Three variables that may impact children's response to treatment include treatment exposure, prior exposure to trauma, and caregiver involvement in treatment. These variables were chosen because they involve several systems that may impact young children's behavior including environmental variables (treatment exposure), individual child experiences (trauma exposure), and family influences (caregiver involvement). It is evident from previous research that length of treatment delivered can impact treatment outcomes. It is also clear from previous research that exposure to trauma is associated with the development of numerous behavioral difficulties including aggression, noncompliance, regression, and sleep difficulties. These behaviors are commonly displayed in the population of children at the day treatment centers in this study and many children receiving services have been exposed to traumatic events. In addition, previous research indicates that family involvement is a key factor in the treatment of early childhood behavior problems and the day treatment centers seek to involve family in treatment services. Thus, there is a need for research to examine the variables that impact young children's response to treatment at the multicomponent, community-based day treatment centers. This study sought to determine whether length of treatment, prior exposure to trauma, and level of caregiver involvement in treatment impacts treatment gains.

Research Questions and Hypotheses

The present study examined four primary research questions to extend the research on evidence-based therapy for children with severe externalizing behaviors and

to investigate the impact of trauma, family involvement, and treatment exposure on response to treatment. The first research question pertained to the overall impact of treatment services on young children's externalizing behaviors, comparing pre-treatment externalizing behaviors to concurrent treatment externalizing behaviors. The second research question examined treatment gains with consideration for the amount of time families received services from the day treatment program. The third research question examined the relationship among participant trauma exposure and the severity of externalizing behaviors prior to receiving treatment, as well as the amount of change in externalizing behavior after starting the treatment program. Finally, the fourth research question addressed the influence of caregiver involvement in therapy on young children's response to treatment. The four primary research questions and hypotheses are presented below:

Research Question 1. Do externalizing behaviors decrease while receiving treatment services from a multicomponent, community-based, day treatment program as measured by t-scores on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) and the frequency of externalizing behaviors on the Parent Daily Report (PDR)?

Previous research shows a significant decrease in externalizing and internalizing behaviors in young children after receiving services at the multicomponent, community-based day treatment centers, as measured by the CBCL (McTate et al., 2014). However, research has not examined the impact of treatment services on the frequency of externalizing behaviors as measured by the Parent Daily Report (PDR). The current study sought to replicate the results of McTate and colleagues (2014), while providing further support of the intervention's effectiveness by including the PDR as an additional

measure. Therefore it was hypothesized that there would be a significant decrease in externalizing behaviors as measured by t-scores on the CBCL and frequency of externalizing behaviors on the PDR.

Research Question 2. Does the length of treatment services received at the multicomponent, community-based, day treatment program (i.e., number of days) influence the amount of change in participants' externalizing behaviors as measured by t-scores on the Child Behavior Checklist (CBCL) and frequency of weekly externalizing behaviors on the Parent Daily Report (PDR)?

Previous research indicates that length of treatment influences treatment outcomes. This finding has been confirmed with the treatment of academic skills deficits, examining the impact of a summer reading intervention (Zvoch, 2012), as well as child behavior problems examining the impact of parent child interaction therapy (Thomas & Zimmer-Gembeck, 2007). In both cases, longer exposure to treatment yielded more positive outcomes. Therefore, it was hypothesized that the amount of change in t-scores on the CBCL would increase as length of treatment increases. Thus, the longer children receive treatment services from the day treatment center, the more their externalizing behaviors would improve. In addition, it was hypothesized that the amount of change in the frequency of externalizing behaviors on the PDR would increase as the length of treatment increases.

Research Question 3. Does prior exposure to trauma, as measured by the Trauma Events Screening Inventory-Parent Report Revised, Brief Version (TESI-PRR; Ghosh-Ippen et al., 2002), have an association with the severity of participants' externalizing symptoms prior to receiving treatment as measured by the Externalizing Behaviors t-

score on the CBCL and frequency of externalizing behaviors on the PDR? Furthermore, does participant prior exposure to trauma influence the amount of change in externalizing symptoms after receiving treatment services as measured by the Externalizing Behaviors t-score on the CBCL and frequency of externalizing behaviors on the PDR?

Research indicates that children who have been exposed to trauma are at risk for developing externalizing behavior problems (Cohen & Mannarino, 2008). However, research has not yet compared the impact of trauma exposure on externalizing behavior symptoms in young children with a wide range of symptoms and clinical diagnoses. This study sought to determine the relation between prior trauma exposure and externalizing behavior symptoms. Therefore it was hypothesized that participants with prior exposure to trauma, as indicated by the Trauma Exposure Symptom Inventory-Parent Report Revised (TESI-PRR-B), would have greater externalizing symptoms on the CBCL and PDR prior to starting the multi-component, community-based day treatment program. In addition, it was hypothesized that as participant prior exposure to trauma increased, as indicated by scores on the TESI-PRR-B, the amount of change in t-scores on the Externalizing Behaviors subscale of the CBCL and the amount of change in frequency of externalizing behaviors on the PDR would increase after beginning the treatment program.

Research Question 4. Does level of caregiver involvement in therapy at the day treatment center (i.e., Low Involvement, Medium Involvement, or High Involvement) influence participants' response to treatment?

Previous research indicates that successful outcomes for the treatment of externalizing behavior problems are strongly linked to family engagement in therapy.

Moreover, research shows that higher rates of caregiver attendance and caregiver engagement in cognitive behavioral therapy sessions are associated with greater outcomes for youth in therapy for anxiety symptoms (Podell & Kendall, 2011). Therefore it was hypothesized that there would be a greater decrease in externalizing behaviors for participants whose caregivers were highly involved in treatment, in comparison to caregivers who were classified as low involvement. High involvement and low involvement were determined based on scores on the Caregiver Involvement in Therapy Scale (CITS).

CHAPTER 3

Method

Participants

Participants in this study were 50 children and their primary caregivers receiving services at one of three day treatment centers in the Midwestern United States.

Caregivers included 27 from the Omaha day treatment site, 11 caregivers from the Lincoln day treatment site, and 12 caregivers from the Elkhorn day treatment site.

Caregivers were predominantly female ($n=44$), whereas children were mostly male ($n = 41$). While there is a greater percentage of males receiving day treatment services at each site on a regular basis(e.g., McTate et al.), the percentage of males in this study is slightly elevated. Caregivers reported information on their child's behavior and experiences.

Specific information regarding child ethnicity, household income, and caregiver marital status may be found in Table 1.

The estimated number of participants required for participation ($n = 48$) was obtained based on the recommended sample size needed to detect moderate effect size according to G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), a statistical program used to conduct power analyses. G*Power calculates the necessary sample size based on the required level of significance and the expected effect size. For the current study, the sample size was calculated based on an expected effect size of .25 with $\alpha \leq .05$ significance level.

Table 1:

Demographic Characteristics of Participants (N = 50)

Participant Characteristic	<i>n</i>	Percent
Site		

Omaha	27	54
Lincoln	11	22
Elkhorn	12	24
Child Age		
2	4	8
3	4	8
4	18	36
5	9	18
6	7	14
7	4	8
8	2	4
9	2	4
Child Gender		
Male	41	82
Female	9	18
Child Ethnicity		
White/Non-Hispanic	27	54
Black/African American	8	16
Hispanic/Latino	1	2
American Indian/Alaskan Native	0	0
Asian/Pacific Islander	0	0
Biracial	14	28
Household Income		
0-16,000	29	58

16,001-26,000	8	16
26,001-38,000	3	6
38,001+	10	20
<hr/>		
Caregiver Marital Status		
Single	30	60
Married	8	16
Divorced	10	20
Separated	2	4
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Setting

The study was conducted at three multicomponent, community-based day treatment centers located in the Midwestern United States. The treatment centers offer a wide range of services to children and families experiencing significant child behavior difficulties.

Behaven Kids treatment program: The day treatment program used in the current study is a multicomponent, community-based treatment program for children with severe externalizing behavior problems. Services offered to children and families include: (a) a specialized day treatment program for children ages 18 months to nine years; (b) individual and family outpatient therapy for children and adolescents; (c) individual and family therapy for children in the day treatment program; and (d) in-home behavior management coaching.

The current study evaluated the impact of the specialized day treatment program, which included required individual and family therapy services, on children's externalizing behaviors. The study did not evaluate individual and family outpatient

services for children who were not participating in the specialized day treatment program. The day treatment program separates children into treatment groups dependent on age. For all children, the program is grounded in traditional behavioral theories including operant conditioning (Skinner, 1953) and social learning theory (Bandura, 1977). Specific strategies that the day treatment program uses include positive reinforcement, modeling, token economy systems, problem solving, social skills instruction, and time-out. Within the day treatment program, positive reinforcement contingent on prosocial behaviors is provided through the use of tokens and verbal praise. A fixed continuous reinforcement schedule is used when children begin the program, and as children progress toward individual goals, the reinforcement schedule fades to an intermittent schedule. Children have the opportunity to exchange their tokens for activities or prizes (e.g., stickers or small toys). A four-level discipline hierarchy is used for negative child behaviors beginning with (1) a verbal request to stop the behavior; (2) a 10-second time-out, sitting on the floor; (3) a 10-second time-out sitting in a designated chair; and (4) a 30-second time-out in a designated room (Peterson, & Peterson, 2006).

These behavioral strategies have been shown to increase positive behaviors and decrease negative behaviors in young children with severe behavioral needs (Burke et al., 2010; Ingvarsson, Hanley, & Welter, 2009; McTate et al., 2014; Sherburne, Utley, McConnell, & Gannon, 1988). The overall goal of the multicomponent, community-based, day treatment program is for these behavioral strategies to be implemented consistently at both home and school so the program will result in the most optimal outcomes for children with severe behavioral needs. Of note, children in the specialized

day treatment program who are of school-age receive academic work and are required to complete academic seatwork.

Children enrolled in the specialized day treatment program are required to attend two individual therapy sessions and two family therapy sessions per week. Therapists develop individualized treatment plans dependent on family needs and family goals. Treatment goals may vary from decreasing externalizing behaviors and teaching replacement behaviors to the treatment of internalizing symptoms related to prior trauma exposure. Therapy sessions are therefore individualized to work toward unique family treatment goals.

Measures

Dependent variables. The dependent variables in this study included the Child Behavior Checklist (CBCL) and Parent Daily Report (PDR), which served as indicators of participant externalizing behavior.

Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). The CBCL is a parent-completed rating scale for children and adolescents ages 1.5-18. There are two forms: a preschool form for children ages 18 months to 5 years and a school-age form for children ages 6 to 18 years. Parents indicate on a 3-point scale the extent to which each item describes the child's behavior within the past 2 months (0 = *Not True*, 1 = *Somewhat or Sometimes True*, 2 = *Very True or Often True*). Ratings are summed to yield seven subscales for young children (i.e., Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems, and Aggressive Behavior) and eight subscales for older children (i.e., Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-

Breaking Behavior, and Aggressive Behavior), each representing a different area of behavior. Scores are compared to those of a national sample of children of the same age and gender. T-scores of 65 to 69 for Internalizing, Externalizing, and Total Problems place a child in the borderline clinical range and t-scores greater than 70 place a child in the clinically significant range.

The use of a reliable and valid measure of child behavior is critical to this study to compare participant behavior prior to treatment, with participant behavior after receiving treatment services. The CBCL meets criteria for being a psychometrically sound measure of child behavior. Coefficient alpha reliability is a measure of internal consistency, or the degree to which individual items correlate to one another. Alpha coefficients of 0.7 and above are considered acceptable (George & Mallery, 2003). Internal consistency on the composite scales is supported by alpha coefficients ranging from .89 to .95 on the CBCL/1.5-5 and .78 to .97 on the CBCL/6-18 (Achenbach & Rescorla, 2001). Alpha coefficients in the current study ranged from .89 to .96 on the CBCL/1.5-5 and .82 to .94 on the CBCL/6-18.

Test-retest reliability refers to the stability of child behavior or performance across different testing times. Test-retest reliability coefficients for the CBCL ages 1 ½-5, were high with an average of $r = .85$ across all scales for a mean interval of 8 days. Test-retest reliability coefficients for each scale were as follows: $r = .90$ for Internalizing, $r = .87$ for Externalizing, and $r = .90$ for Total Problems. For the CBCL 6-18 test-retest reliability coefficients were also high and include .91 for Internalizing, .92 for externalizing, and .94 for Total Problems, with a one-week interval (Achenbach & Rescorla, 2000; 2001).

The second important psychometric issue is that of validity. The validity of a test refers to the extent to which the test measures what it purports to measure. The CBCL reports information regarding three types of validity, including content validity, criterion-related validity, and construct validity (Achenbach & Rescorla, 2000; 2001). Content validity refers to the degree to which a measure's content includes what the measure is intended to assess. The CBCL manual provides justification for the inclusion of all problem items, competence items, and adaptive functioning items. In addition, the manual provides information supporting the content validity in which CBCL items have been supported by decades of research, consultation, feedback, and refinement. The manual provides current evidence for the ability of all items to discriminate significantly ($p < .01$) between demographically similar referred and non-referred children (Achenbach & Rescorla, 2000; 2001).

Criterion-related validity is the degree of association between a particular measure (e.g., CBCL scaled score) and an external criterion. Achenbach and Rescorla (2001) reported that scores on syndrome scales, DSM-oriented scales, Internalizing, Externalizing, and Total Problems on the CBCL 6-18 were significantly higher for clinically referred children than for demographically matched non-referred children, while controlling for age, sex, socioeconomic status, and ethnicity in a sample of 2,500 children from the United States. Studies have also found similar findings in European societies (Schmeck et al., 2001) and Asian societies (Ang, Rescorla, Achenbach, Ooi, Fung, & Woo, 2012).

Construct validity is the degree to which a test measures the underlying construct it claims to measure (Cronbach & Meehl, 1955). The Achenbach System of Empirically

Based Assessment (ASEBA) scales, including the CBCL, Youth Self-Report (YSR), and Teacher Report Form (TRF), can be viewed as representing constructs that tap into informants' experience pertaining to child behaviors (Achenbach & Rescorla, 2001). The construct validity of the ASEBA scales has been confirmed by using correlations of ASEBA problem scales with DSM diagnoses, correlations of ASEBA scales with other instruments, and cross-cultural examination of the ASEBA scales. Correlations of the ASEBA problem scales with DSM-IV diagnoses on the DSM-IV checklist ranged from .49 to .80. Other instruments used to assess the construct validity include the Conners Rating Scale and the Behavior Assessment System for Children (BASC). Correlations ranged from .71 to .80 for the Conners Rating Scale and .46 to .89 for the BASC Rating Scale (Achenbach & Rescorla, 2001). These correlations indicate the ASEBA scales, DSM-IV checklist, and other instruments (i.e., Conners Rating Scale, BASC Rating Scale) assess similar underlying constructs. Providing further support of the construct validity of the CBCL, multiple factor analytic studies of Dutch, Australian, Chinese, and Israeli participants have supported the CBCL syndrome structure (Achenbach & Rescorla, 2001).

Parent Daily Report (PDR; Patterson, 1974). The Parent Daily Report (PDR), found in Appendix B, is a parent observation measure used to assess the occurrence or nonoccurrence of 33 externalizing behaviors (e.g., defiance, stealing) displayed by the child during the course of one week. At the end of each day, caregivers are asked to look at the list of behaviors and place a checkmark next to the behaviors that occurred. The PDR checklist generates two scores: PDR Total Behaviors and Targeted Behaviors. The Total Behavior score is the sum of all occurrences of externalizing behaviors displayed

during the week and the Target Behavior score is the sum of all occurrences of behaviors identified by the caregiver as particularly problematic. The PDR has yielded adequate psychometric qualities including evidence of test-retest reliability with coefficients ranging from .60 to .82 when compared across two consecutive weeks. In addition, there is evidence of concurrent criterion validity with frequency of aversive behavior observed by professionals as the criterion, with coefficients ranging from .48 to .69 (Chamberlain & Reid, 1987; Nadler & Roberts, 2013; Patterson, 1974).

The current study modified the PDR to ask caregivers to rate the occurrence of their child's externalizing behaviors over the course of three days (versus seven days). This modification was made in the current study in order to be consistent with the multicomponent, community-based day treatment sites. The day treatment sites asked caregivers to complete the measure for only three days due to difficulty with caregivers remembering to complete and return the form. Because the current study did not assess the frequency of externalizing behaviors across the course of an entire week, the PDR was used to generate a daily frequency of externalizing behaviors score across three days (score for Day 1, score for Day 2, and score for Day 3). The three scores were then averaged to yield an average externalizing behaviors score for that three day period. This process was completed for Time 1 PDR scores accessed in the participants' file and for Time 2 PDR scores completed onsite during the data collection process. To calculate the amount of change in frequency of externalizing behaviors, Time 1 average PDR score was subtracted from the Time 2 average PDR score.

Independent variables. The three independent variables considered in this study include participant exposure to trauma, duration of treatment services, and primary

caregiver involvement in therapy.

Participant exposure to trauma. Participant exposure to trauma was measured by the Trauma Exposure Symptom Inventory-Parent Report Revised (TESI-PRR-B; Ghosh-Ippen et al., 2002), which may be found in Appendix C. The TESI-PRR-B is a revised version of the original Trauma Exposure Symptom Inventory-Parent Report (TESI-PR; Ford et al., 2000) which is a parent report trauma measure of trauma exposure in children aged 3 to 18 years. The revised version (TESI-PRR-B) was developed for use with children aged 0 to 6 years and is a 24-item scale designed to screen for a wide range of potential traumatic exposures including accidents, hospitalizations, witnessing community violence, witnessing domestic violence, physical abuse, sexual abuse, exposure to natural disasters, and terrorism. Questions range from assessing accidental traumatic exposures (e.g., “Has your child ever been involved in a serious accident like a car accident, fall, or fire?”) to questions regarding specific abuse (e.g., sexual trauma). Primary caregivers are asked to indicate whether their child has experienced an event. Research examining the psychometrics of the TESI-PR is limited. However the TESI-PR has been shown to have adequate test-retest reliability with kappa values ranging from .50 to .79. Internal consistency in the current study is supported by an alpha coefficient of .65.

Treatment length through demographic record review. All children and families receiving services at the day treatment center participate in two interviews: (1) a pre-treatment assessment (PTA), conducted by a licensed mental health professional, and (2) an Individual Diagnostic Interview (IDI), conducted by a licensed psychologist. Information obtained in these interviews includes an in-depth family psychosocial

history, family stressors, current individual and family functioning, and an in-depth analysis of current presenting problems. Information from the interviews is developed into a formal report and is used for documentation and to guide treatment planning. Consent to access participant records at the day treatment center, including formal documentation (e.g., PTA and IDI), was obtained from the primary caregiver and the researcher reviewed participant records to obtain demographic information. The demographic information obtained for the proposed study included: child gender, child ethnicity, number of siblings, child mental health diagnoses, current medications, primary caregiver gender, family background (i.e., biological parent, foster parent, adoptive parent, guardian, relative, other), caregiver marital status, number of persons living in the home, household income level, and length of treatment services based on participant's start date. The demographic recording form that the primary investigator completed for each participant may be found in Appendix D.

Treatment length ($M=100.12$, $SD= 110.32$) is the number of days children attended the day treatment program. The variable was calculated by counting the number of days from when the child started the day treatment program until the child's caregiver participated in the study. Researchers did not have access to data describing absences from the day treatment program and therefore absences were not taken into account.

Caregiver involvement in treatment. The Caregiver Involvement is an 8-item, researcher developed scale, completed by therapists, to assess the primary caregiver's involvement with treatment services. Based on the therapist perceptions of caregiver treatment integrity, caregiver behaviors were rated on a 4-point Likert scale (items 1-7) and a global rating of caregiver involvement (item 8) on a scale of 1 (not at all involved)

to 10 (highly involved). Scores on all items are summed together to create a total involvement composite score. Scores range from 8 to 38 with higher scores indicating greater involvement. The CITS was developed by the primary investigator and lead faculty advisor. The CITS was reviewed and revised by day treatment clinical and research directors, as well as multiple researchers and psychologists who are clinical experts in working with children, youth, and families. A copy of this rating scale may be found in Appendix E. A reliability analysis was conducted to determine the internal consistency of the scale to ensure it was a reliable measure of caregiver involvement. According to Bland and Altman (1997), a Cronbach's alpha of above .70 reflects adequate reliability for research purposes. Cronbach's alpha for the CITS in this study was $\alpha = .883$, which suggests good internal consistency reliability. See Table 2 for reliability analysis results.

Table 2

Reliability Analysis for the Caregiver Involvement in Therapy Scale (CITS)

Item	Cronbach's Alpha if Item Deleted
1. Caregiver is on time for therapy sessions.	.881
2. Caregiver uses verbal cues to indicate active engagement.	.868
3. Caregiver gives nonverbal cues to indicate active engagement.	.870
4. Caregiver asks questions during therapy sessions.	.872
5. Caregiver practices behavior management techniques <i>within</i> therapy.	.859
6. Caregiver practices behavior management techniques <i>outside of</i> therapy.	.856
7. Caregiver asks direct questions about child's progress.	.865
8. Overall level of caregiver involvement in treatment.	.876

Procedures

To conduct the study, several materials were needed. First, we obtained the administration manual for the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), one CBCL protocol for each participant, and access to the computer scoring software for the CBCL. Second, we obtained the administration manual for the Trauma Events Screening Inventory-Parent Report Revised, Brief (TESI-PRR-B; Ghosh-Ippen et al., 2002) as well as one TESI-PRR-B protocol for each participant. Third, we used one blank copy of the Parent Daily Report (PDR; Patterson, 1975) for each participant. Fourth, we used blank copies of the Caregiver Involvement in Treatment Scale (CITS). To administer the CBCL, TESI-PRR-B, and PDR, we provided primary caregivers with a

sharpened pencil, a clipboard, and a quiet space to complete the measures. Therapists at the day treatment program were asked to complete the CITS for each family participating in the study, as a measure of caregiver involvement in therapy. Finally, we required access to child records at the day treatment facility, to obtain family demographic information. Caregivers completed an Informed Consent Form and a Private Health Information (PHI) authorization form indicating authorization for researchers to obtain access to demographic information. A copy of the PHI authorization form may be found in Appendix A

Consent. Prior to beginning the project, approval was obtained from the University of Nebraska-Lincoln Institutional Review Board (IRB). Permission for conducting the project was also obtained from the founders of the day treatment program as well as the Vice President of Research, Evaluation, and Program Development. The researcher worked with the Vice President of Research, Evaluation and Program Development and Clinical Directors of each site to schedule convenient data collection times at each day treatment location. Consent to participate in the study, as well as authorization for access to Private Health Information (PHI), was obtained from the primary caregiver and/or legal guardian of each participant. To minimize response bias, researchers stated in the consent form and verbally emphasized to each caregiver that individual responses would not be shared with the day treatment site. Families were notified that they would be assigned a research code, which would only be accessible by the lead researcher. Researchers identified themselves as external to the agency and ensured families that they would maintain confidentiality in responses.

Included in the consent form was information regarding the sensitive nature of the TESI-PRR-B. Primary caregivers were notified that the TESI-PRR-B asks questions about their child's exposure to traumatic events and they were notified of the procedures regarding non-disclosed traumatic events. More specifically, if a caregiver indicated the occurrence of an event warranting a report to Child Protective Services (e.g., physical abuse, sexual abuse, or neglect), researchers immediately referred to the family's records at the day treatment center to confirm that the traumatic exposure(s) was reported to the appropriate agency (i.e., Child Protective Services). If needed, an immediate follow up meeting was held with the child's assigned family therapist at the day treatment center. In the event that the traumatic exposure(s) was not disclosed to the appropriate agency and was deemed a reportable offense, researchers worked with the site-specific Clinical Director to make the appropriate report. However, during the course of data collection, no non-reported incidences of abuse or neglect were identified. Notably, in no case was the caregiver completing the TESI-PRR-B the offending caregiver or perpetrating caregiver of identified traumatic events.

Consent to participate was also obtained from the day treatment center's therapists. There were no adverse effects for caregivers and therapists who chose not to participate. All families receiving services at the day treatment centers were notified of the upcoming study using a flyer that was distributed to the front desk staff at each site (i.e., Omaha, Elkhorn, Lincoln) one week prior to data collection. The flyer contained a brief description of the study, as well as the schedule for data collection at the specific day treatment site.

Data collection. Data collection for the study involved gathering information of existing data (i.e., pre-treatment CBCL and pre-treatment PDR), as well as four cycles of multiple visits to each day treatment site. During the Pre-Treatment Assessment, the on-site clinician presented the primary caregiver with the CBCL and PDR. Primary caregivers were asked to complete the CBCL and were asked to complete the PDR by recording whether or not the 33 externalizing behaviors were displayed by their child each day, over the course of three days. Caregivers were asked to return the measure during their Individual Diagnostic Interviews. If the measures were not returned, clinicians asked the primary caregiver to estimate the frequency of externalizing behaviors their child displayed over the previous three days. The first cycle of data collection began shortly after approval from the IRB in March 2014 and took place over the duration of three weeks.

During the first week, data were collected at the Omaha day treatment site on Monday, Wednesday, and Friday during peak drop-off and pick-up hours (i.e., early morning and late afternoon). During Week Two, data were collected at the Elkhorn day treatment site on Monday, Wednesday, and Friday during peak drop-off and pick-up hours, and during Week Three, data were collected at the Lincoln day treatment site on Monday, Wednesday, and Friday, during peak drop-off and pick-up hours. This process was repeated for Cycle Two, Cycle Three, and Cycle Four of data collection. However, during Cycle Two, data were collected at the Elkhorn day treatment center during Week One, at the Lincoln day treatment center during Week Two, and at the Omaha day treatment center during Week Three; during Cycle Three, data were collected at the Lincoln day treatment center during Week One, the Omaha day treatment center during

Week Two, and the Elkhorn day treatment center during Week Three; and during Cycle Four data were collected at the Omaha day treatment center during Week One, Lincoln during Week Two, and Elkhorn during Week Three. Cycle Four was added due to low recruitment during Cycles One through Three. Approximately two months elapsed between cycles of data collection. In addition, researchers added a one-day data collection booster session at each site. Booster sessions took place on a Thursday at each site from 3:00 pm-6:00 pm. See Appendix F for the timeline of data collection.

During each data collection cycle, participating primary caregivers completed the CBCL, TESI-PRR-B, PDR, and the Treatment Evaluation Inventory-Short Form. Completion of these forms took approximately 30 minutes for each primary caregiver to complete. When these measures were completed, primary caregivers received a \$10 gift card to Target or Walmart for their participation in the study. During the same week that primary caregivers completed their measures, participating day treatment therapists were asked to complete the CITS for each family that participated in the study. The demographic record review took place by the researcher on the same day of data collection, during off-peak hours (i.e., 10:00am to 3:30pm).

Treatment acceptability. The *Treatment Evaluation Inventory - Short Form (TEI-SF)*, was used to measure caregiver perceptions of treatment acceptability. The *TEI-SF* consists of 9 items that caregivers rate on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Item number 6 is reverse-coded. Scores range from 9 to 45, and higher scores indicate greater acceptability. There is evidence of a reliable, two-factor structure: Acceptability and Ethical Issues/Discomfort (Kelley, Heffer, Gresham, & Elliott, 1989). The *TEI-SF* is internally consistent ($\alpha = .85$) and

deemed to be a valid measure of treatment acceptability. A reliability analysis in the current study obtained a high internal consistency level of ($\alpha = .90$) A copy of this rating scale may be found in Appendix G.

Treatment integrity of the day treatment model. To ensure that each participant received similar treatment services, direct observation was used to assess lead teachers' implementation of the day treatment center's model of behavior management. Program coordinators at each site conduct weekly 10-minute observations of teachers' implementation of the day treatment model. Observations consist of measuring the frequency of the following behaviors: delivery of praise statements, delivery of consequences, missed opportunities for praise delivery, missed opportunities for delivery of consequences, and warnings given. It is expected that teachers deliver 30-40 praise statements and 10 consequences during the 10-minute observation. According to the treatment model, missed opportunities and warnings given should not occur. Data collected by the program coordinators were collected for the study. According to the day treatment center program manual, implementation is considered adequate if the following criteria are met: 30-40 praise statements delivered, 10 consequences delivered, missed opportunities less than five, and warnings less than five.

Analysis

Two types of analyses were conducted for the present study. A dependent samples t-test was used to answer Research Question 1 to determine if participants' externalizing behaviors decreased after receiving services at the day treatment site as determined by t-scores on the CBCL and frequency of externalizing behaviors on the PDR. In addition, logistic regression was used to answer Research Questions 2, 3, and 4 to determine the

relation between the independent variables (i.e., exposure to trauma, exposure to treatment, and family involvement in treatment) and the dependent variables (i.e., amount of change in participant externalizing behavior score on the CBCL and amount of change in the frequency of externalizing behaviors on the PDR.)

Dependent samples *t*-test. A dependent samples *t*-test, or paired samples *t*-test, is a statistical technique used to determine whether there is a significant difference between the means of two conditions (Urdan, 2010). This technique is appropriate when a within-subjects design or a matched-groups design is used. A dependent samples *t*-test was used to determine whether a significant difference exists between the pre-treatment and post-treatment scores on the Externalizing Behaviors subscale of the CBCL. An additional dependent samples *t*-test was used to determine if there is a significant difference in the frequency of externalizing behaviors on the PDR from pretreatment to post-treatment.

The dependent samples *t*-tests for the study were conducted using SPSS Statistics Software. To run the dependent samples *t*-test, the “Analyze” function was selected, followed by “Compare Means,” and “Paired Samples *T*-Test.” The Paired Samples *T*-Test dialogue box opened in which the variables were selected for analyses. For analysis one, the CBCL pre-treatment score and in-treatment score were selected and entered as Variable1 and Variable 2. For analysis two, the PDR pre-treatment score and PDR in-treatment score were selected and entered as Variable 1 and Variable 2. The “Continue” button was then selected, followed by “Ok.”

Ordinary least squares regression. Ordinary least squares regression (OLS) is a statistical technique used to model a single variable, which has been recorded on an interval scale. It is also a technique that can be applied to single or multiple explanatory

variables and/or categorical explanatory variables (Hutcheson, 2011). Two OLS regression analyses were used to examine the relationship between participants' pre-treatment CBCL scores and prior exposure to trauma, as well as the relationship between participants' pre-treatment PDR scores and prior exposure to trauma. Thus, the CBCL externalizing behaviors score was regressed on the prior exposure to trauma variable, and the pre-treatment PDR score was regressed on the prior exposure to trauma variable. In addition, OLS regression analyses were used to predict the amount of change in participants' externalizing behavior symptoms on the CBCL and PDR using the following independent variables length of treatment, prior exposure to trauma, and level of caregiver involvement in treatment. The amount of change in externalizing symptoms on the CBCL was determined by subtracting the in-treatment CBCL score from the pre-treatment CBCL score. The amount of change in externalizing symptoms on the PDR was determined by subtracting the mean in-treatment PDR score from the mean pre-treatment PDR score.

The OLS regression analyses for the study also were conducted using SPSS Statistics Software. To run the OLS regression analyses, the "Analyze" function was selected, followed by "Linear Regression." The linear regression dialogue box opened and variables were selected for analyses. To answer Research Question 2, two OLS regression analyses were conducted. The dependent variable was entered (i.e., amount of change in CBCL externalizing behaviors score or amount of change in PDR score) and participant length of treatment was entered as the independent variable. To answer Research Question 3, two OLS regression analyses were conducted. The dependent variable was entered (i.e., amount of change in CBCL externalizing behaviors score or

amount of change in PDR score) and participant prior exposure to trauma was entered as the independent variable. To answer Research Question 4, two OLS regression analyses were conducted. The dependent variable was entered (i.e., amount of change in CBCL externalizing behaviors score or amount of change in PDR score) and the level of caregiver involvement in therapy was entered as the independent variable.

CHAPTER 4

Results

The purpose of this study was to examine factors that may be associated with children's response to a multicomponent, community-based treatment program including treatment characteristics (e.g., treatment length), child characteristics (e.g., prior exposure to trauma), and family characteristics (e.g., family involvement in therapy). The following sections discuss the results of this study. First, research questions and corresponding hypotheses investigated in this study are reviewed. Second, a brief review of the data collection method is provided. Third, preliminary analyses including methods used to control for group differences are described and results from instrument testing. Fourth, results of each research question are described and discussed. Finally, results regarding treatment integrity and social validity of the day treatment programs are described.

Preliminary Analyses

Descriptive statistics, including means, standard deviations, skewness and kurtosis were obtained for all variables. Initial results are reported in Table 3. Trauma exposure ($M = 3.78$, $SD = 3.57$) refers to the number of traumatic events that caregivers reported that their child had been previously exposed. CITS total score ($M = 29.98$, $SD = 6.78$) is the total score obtained on the CITS measure. The amount of change in CBCL score ($M = 6.86$, $SD = 10.16$) and the amount of change in PDR score ($M = 3.85$, $SD = 5.41$) were obtained by subtracting the Time 2 score from the Time 1 score. The skewness and kurtosis for trauma exposure, CITS total score, amount of change in CBCL score, and amount of change in PDR score were in the acceptable range.

Treatment length ($M = 100.12$, $SD = 110.32$) is the number of days children attended the day treatment program. The variable was calculated by counting the number of days from when the child started the day treatment program until the child's caregiver participated in the study. Researchers did not have data describing absences from the day treatment program and therefore absences were not taken into account. The length of treatment variable violated the assumption of normality. Due to the highly skewed nature of the treatment length variable (Skewness = 1.77; Kurtosis = 2.79), a transformation was performed. This was performed in order for data to meet the rule of normality. The transformation yielded results that no longer violated the assumption of normality (Skewness = -.077; Kurtosis = -.808). Results following the transformation are reported in Table 4.

Table 3

Descriptive Statistics

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Treatment Length	50	100.12	110.32	1.77	2.79
Trauma Exposure	50	3.78	3.57	1.13	.429
CITS Total	47	29.98	6.78	-.959	.815
CBCL Amount Change	44	6.86	10.16	.351	-.208
PDR Amount Change	47	3.85	5.41	.951	.788

Table 4

Descriptive Statistics following Transformation

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Treatment Length	50	1.75	.598	-.077	-.808
Trauma Exposure	50	3.78	3.57	1.13	.429
CITS Total	47	29.98	6.78	-.959	.815
CBCL Amount Change	44	6.86	10.16	.351	-.208
PDR Amount Change	47	3.85	5.41	.951	.788

Controlling group differences and covariates. Pearson correlations were obtained among the following variables: Child Age, Child Gender, Child Ethnicity, Treatment Length, Time 1 CBCL Externalizing Subscale, Amount of Change in CBCL Externalizing Subscale, Time 1 PDR Average Score, Amount of Change in PDR Score, Total Trauma Exposures, and the CITS Total Score. Results may be found in Table 5. Analyses yielded a significant correlation between Child Age and Trauma Exposure, $r(48) = .503$, ($p < .000$). Child Age is therefore used as a covariate in analyses with the Total Trauma Exposures variable.

Table 5

Intercorrelations Among Study Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Age	----	-.103	.055	-.106	.068	-.168	.066	.196	.503**	.091
2. Gender	-.103	----	-.188	-.034	-.227	-.119	-.001	.043	-.029	.007
3. Ethnicity	.055	-.188	----	.067	.030	-.003	.054	.080	.122	.042
4. Treatment Length	-.106	-.034	.067	----	-.028	.091	-.130	-.225	-.209	-.277
5. T1 CBCL Ext	.068	-.227	.030	-.028	----	.473**	.528**	.325*	.233	.174
6. Amount Change CBCL Ext	-.168	-.119	-.003	.091	.473**	----	.084	.277	-.012	.152
7. T1 PDR Average	.066	-.001	.054	-.130	.528**	.084	----	.802**	.546**	.217
8. Amount Change PDR Average	.196	.043	.080	-.225	.325*	.277	.802**	----	.519**	.279
9. Trauma	.503**	-.029	.122	-.209	.233	-.012	.546**	.519**	----	.251
10. CITS Total	.091	.007	.042	-.277	.174	.152	.217	.279	.251	----

*Denotes significance at $p < .05$ **Denotes significance at $p < .01$

Research Question One Results

It was hypothesized that there would be a significant decrease in externalizing behaviors as measured by t-scores on the CBCL. A paired samples *t*-test showed that Time 1 CBCL externalizing t-scores ($N = 44$; $M = 71.20$; $SD = 9.85$) and Time 2 CBCL externalizing t-scores ($N = 44$; $M = 64.30$; $SD = 10.25$) differed significantly, $t(43) = 4.53$, $p < .001$), with the Time 2 score lower. Cohen's *d* was 1.38 with an effect size (*r*) of 0.57, a medium effect (Cohen, 1988). Results may be found in Table 6. Of clinical importance, a frequency analysis was conducted with the Time 2 CBCL Externalizing Behaviors scale. Results indicated that 76% of Time 2 Externalizing Behaviors t-scores decreased to levels below what would be deemed as symptoms of clinical significance (i.e., t-scores < 70).

It was also hypothesized that there would be a significant decrease in frequency of externalizing behaviors on the PDR. A paired samples *t*-test showed that the Time 1 frequency of externalizing behaviors on the PDR ($N = 47$; $M = 12.05$; $SD = 5.45$) and the Time 2 frequency of externalizing behaviors on the PDR ($N = 47$; $M = 8.22$; $SD = 3.39$) differed significantly $t(46) = 4.83$, $p = .030$), with the Time 2 score lower. Cohen's *d* was 1.42 and the effect size (*r*) was 0.58. Using Cohen's (1988) conventions, this is a medium effect size. Results may be found in Table 6.

Table 6

Descriptive Statistics and t-test Results for CBCL Externalizing T-scores and Parent Daily Report Average Scores

Outcome	Pre-Treatment		In-Treatment		<i>n</i>	95% CI for Mean Difference		<i>p</i>	<i>t</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		Lower	Upper			
CBCL Externalizing	71.20	9.85	64.30	10.25	44	3.83	9.99	.000*	4.53	43
PDR Average	12.05	5.45	8.22	3.39	47	2.23	5.42	.000*	4.83	46

*Denotes significance at $p < .01$

Research Question Two Results

To examine the relationship between the amount of change on the CBCL externalizing behaviors subscale and the length of time participants spent in treatment, an OLS regression analysis was performed. Preliminary analyses indicated that the length of treatment variable violated the assumption of normality. Due to the highly skewed nature of the treatment length variable, a transformation was performed on the length of treatment variable in order for data to meet the rule of normality for ordinary least squares regression. It was hypothesized that t-scores on the CBCL would decrease as length of treatment increases. The results of the simple regression analysis are presented in Table 7. The OLS regression analysis indicated no significant relationship among the amount of time participants spent in treatment and the amount of change in CBCL externalizing behavior scores.

Table 7:
Simple Regression Analysis for Treatment Length Predicting Amount of Change in CBCL Externalizing Score

Predictor	B	SE(B)	β	<i>t</i>	Sig. (<i>p</i>)
Treatment Length	4.810	3.172	.228	1.516	.137

Note: $R^2 = .052$ ($N = 44$, $p = .137$)

To examine whether the amount of time spent in treatment predicts the amount of change in PDR score, an additional OLS regression analysis was conducted using the transformed Treatment Length variable. It was hypothesized that the frequency of externalizing behaviors reported on the PDR would decrease as the length of treatment increases. The results of the OLS regression analysis are presented in Table 8. The OLS

regression analysis indicated no significant relationship among the amount of time participants spent in treatment and the amount of change in PDR scores.

Table 8:

Simple Regression Analysis Summary for Treatment Length Predicting Amount of Change in PDR Score

Predictor	B	SE (B)	β	<i>t</i>	Sig. (<i>p</i>)
Treatment Length	-1.258	1.587	-.117	-.792	.432

Note: $R^2 = .014$ ($N = 47$, $p = .432$)

Research Question Three Results

To examine the relationship between children's prior exposure to trauma and pre-treatment externalizing behaviors, two OLS regression analyses were conducted. Results of the OLS regression analysis using the pre-treatment CBCL externalizing score as the dependent variable demonstrated that prior exposure to trauma did not significantly predict the t-score of externalizing behaviors on the CBCL prior to receiving treatment services ($\beta = .274$, $t(43) = 1.533$, $p = 1.33$). Results of the OLS regression analysis may be found in Table 9.

Table 9

Regression Analysis Summary for Trauma Score Predicting Time 1 CBCL Externalizing Score

Predictor	B	SE(B)	β	<i>t</i>	Sig. (<i>p</i>)
Age	-.419	.967	-.078	-.434	.667
Trauma	.763	.497	.274	1.533	.133

Note: $R^2 = .059$ ($N = 44$, $p = .133$)

Results of the OLS regression analysis using the pre-treatment PDR as the dependent variable determined that prior exposure to trauma did significantly predict the frequency of externalizing behaviors on the PDR prior to receiving treatment services ($\beta = .676$, $t(47) = 4.90$, $p < .001$). Results of the OLS regression analysis may be found in Table 10.

Table 10

Regression Analysis Summary for Trauma Score Predicting Time 1 PDR Score

Predictor	B	SE (B)	β	<i>t</i>	Sig. (<i>p</i>)
Age	-.817	.425	-.265	-1.924	.061
Trauma	1.022	.208	.676	4.904	.000*

Note: $R^2 = .351$ ($N = 48$, $p < .000$)

To determine the association between children's prior exposure to trauma and amount of change in externalizing behaviors, two OLS regression analyses were

conducted. Results of the OLS regression analysis using the amount of change in CBCL Externalizing Behavior score as the dependent variable demonstrated that prior exposure to trauma did not significantly predict the amount of change at Time 2 ($\beta = .107$, $t(41) = .593$, $p = .557$). Results of the OLS regression analysis may be found in Table 11.

Table 11:

Regression Analysis Summary for Trauma Score Predicting Amount of Change in CBCL Externalizing Score

Predictor	B	SE(B)	β	t	Sig. (p)
Age	-1.25	1.01	-.225	-1.24	.221
Trauma	.308	.497	.107	.593	.557

Note: $R^2 = .036$ ($N = 44$, $p = .467$)

To examine the association between prior exposure to trauma and the amount of change in the frequency of externalizing behaviors as measured by the PDR, an OLS regression was also conducted. Results of the OLS regression analysis using the Time 2 PDR score as the dependent variable determined that prior exposure to trauma did significantly predict the amount of change in the frequency of externalizing behaviors on the PDR at Time 2 ($\beta = .555$, $t(44) = 3.78$, $p < .01$). Therefore, there is 1 unit of change in the amount of change in frequency of externalizing behaviors for every .84 unit of change in traumatic exposure. Results of the OLS regression analysis may be found in Table 12.

Table 12

Regression Analysis Summary for Trauma Score Predicting Amount of Change in PDR Score

Predictor	B	SE (B)	β	<i>t</i>	Sig. (<i>p</i>)
Age	-.224	.447	-.074	-.501	.619
Trauma	.84	.222	.555	3.78	.001*

Note: $R^2 = .274$ ($N = 47$, $p < .001$)

Research Question Four Results

To examine Research Question 4, results of the CITS yielded three groups of caregiver involvement in treatment: Low Involvement, Medium Involvement, and High Involvement. The cut-score for the Low Involvement group was determined by calculating one standard deviation below the mean ($M = 29.98$; $SD = 6.78$) while the High Involvement group was determined by calculating one standard deviation above the mean. Therefore, CITS scores of 23 and below were considered Low Involvement, scores between 24 and 34 were considered Medium Involvement, and scores of 35 and above were considered High Involvement. A one (CBCL externalizing change score) by three (CITS group: Low Involvement, Medium Involvement, High Involvement) Analysis of Variance (ANOVA) was conducted to examine the relationship between the amount of change in CBCL externalizing behaviors score and caregiver involvement in therapy. The main effect yielded an *F* ratio of $F(2, 42) = .249$, $p = .781$, indicating a non-significant relationship. Levene's test for homogeneity of variance was not significant, $t(2, 39) =$

1.56, $p = .215$, indicating approximately equal variances among groups. Results may be found in Table 13.

The same procedure was used to investigate the association between the amount of change in frequency of externalizing behaviors PDR score and caregiver involvement in therapy. A one (PDR change score) by three (CITS group: Low Involvement, Medium Involvement, and High Involvement) ANOVA revealed a main effect F ratio of $F(2, 45) = 3.57$, $p = .037$, indicating a significant relationship. Levene's test for homogeneity of variance was not significant $t(2, 42) = .850$, $p = .435$, indicating approximately equal variances among groups. A Tukey HSD post-hoc analysis was conducted and determined the amount of change in PDR score was significantly higher for caregivers in the High Involvement group than caregivers in the Medium involvement group. The amount of change in PDR score for the Low Involvement group was not significantly different from the other groups. Table 13 summarizes the findings for differences in amount of change on the PDR by caregiver involvement.

Table 13

Means, Standard Deviations, and One-Way Analysis of Variance for the Amount of Change in Externalizing Behaviors and Level of Caregiver Involvement

Variable	Low Involvement		Medium Involvement		High Involvement		F	p	η^2
	M	SD	M	SD	M	SD			
Change in CBCL Score	3.80	5.07	7.08	11.23	7.67	10.64	.249	.781	.013
Change in PDR Score	1.46	2.38	2.58	5.32	6.76	5.66	3.57	.037*	.145

*Denotes significance at $p < .05$

To further examine the relationship between the amount of change in the frequency of children's externalizing behaviors and caregiver involvement in treatment, an OLS regression analysis was conducted. Results of the OLS regression analysis using the amount of change in the frequency of externalizing behaviors as the dependent variable demonstrated that level of caregiver involvement in treatment significantly predicted the amount of change in the frequency of externalizing behaviors ($\beta = 3.13$, $t(43) = 2.53$, $p = .015$). For every 3.13 units of change in score on the CITS, the amount of change in the frequency of children's externalizing behavior increased by 1 unit. Results of the OLS regression analysis may be found in Table 14.

Table 14

Regression Analysis Summary for Level of Caregiver Involvement In Therapy Predicting Amount of Change in PDR Score

Predictor	B	SE (B)	β	t	Sig. (p)
Caregiver Involvement	3.13	1.24	.359	2.53	.015*

Note: $R^2 = .129$ ($N = 45$, $p < .05$)

Treatment Integrity

To ensure components of the day treatment program were delivered as intended, direct observations of lead teachers' program implementation were conducted by program coordinators at each site. Researchers randomly selected three observations during each data collection time period, from each day treatment site. Results are provided in Table 15. Data were not collected during the booster sessions. During Cycle 2, only one observation was available from the Lincoln site and only two observations

were available from the Elkhorn site. This resulted in a total of 33 observations gathered during the entire data collection period. Results demonstrate acceptable implementation of the treatment program.

Table 15

Means and Standard Deviations for Treatment Integrity Across Sites

Program Component	<i>M</i>	<i>SD</i>
Frequency of praise	32.33	4.95
Frequency of consequences	10.21	2.51
Missed opportunities for praise	.181	.528
Missed opportunities for consequences	.272	.518
Warnings given	.303	.585

Social Validity

Participants completed the Treatment-Evaluation Inventory, Short Form, which assesses acceptability of treatment services. Item responses are coded as follows:

Strongly Disagree = 1, *Disagree* = 2, *Neutral* = 3, *Agree* = 4 and *Strongly Agree* = 5.

Importantly, item 6 is reverse coded. Results indicate that in general, participants found the treatment program acceptable and liked the procedures used. Results may be found in Table 16.

Table 16

Means and Standard Deviations for Participant Responses on the Treatment Evaluation Inventory, Short Form (TEI-SF)

	Item	<i>N</i>	<i>M</i>	<i>SD</i>
1.	I find this treatment to be an acceptable way of dealing with the child's problem behavior.	48	4.35	.84
2.	I would be willing to use this procedure if I had to change the child's problem behavior.	49	4.37	.86
3.	I believe that it would be acceptable to use this treatment without children's consent.	49	4.24	.95
4.	I like the procedures used in this treatment.	49	4.33	.97
5.	I believe this treatment is likely to be effective.	49	4.49	.63
6.	I believe the child will experience discomfort during the treatment.	48	3.10	1.42
7.	I believe this treatment is likely to result in permanent improvement.	49	3.98	1.01
8.	I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.	49	4.04	1.02
9.	Overall I have a positive reaction to this treatment.	49	4.33	.90

CHAPTER 5

Discussion

This study examined factors that may be associated with children's response to treatment at a multicomponent, community-based treatment program including treatment length, prior exposure to trauma, and caregiver involvement in therapy. Specifically, the first research question sought to determine whether child behaviors improved while receiving treatment services as measured by t-scores on the CBCL and frequency of externalizing behavior on the PDR. The second research question examined whether length of treatment services was associated with the amount of improvement in externalizing behavior scores on the CBCL and frequency of externalizing behaviors on the PDR. The third research question examined whether prior exposure to trauma had an association with the severity of externalizing behaviors prior to starting treatment. In addition, the third research question considered whether prior exposure to trauma was associated with the amount of change in participant externalizing behaviors. Finally, the fourth research question sought to determine whether level of caregiver involvement in treatment influenced participants' response to treatment.

Overall, the results of the current study showed that (a) child externalizing behaviors decreased significantly from Time One to Time Two as measured by t-scores on the CBCL as well as frequency on the PDR; (b) duration of treatment length did not have an association with the amount of change in externalizing behaviors; (c) prior exposure to trauma did not have an association with the severity of children's pre-treatment externalizing behaviors on the CBCL but did have an association with the frequency of children's pre-treatment externalizing behaviors on the PDR; prior exposure

to trauma did not have an association with the amount of change in externalizing behaviors on the CBCL but did significantly predict the amount of change in the frequency of externalizing behaviors on the PDR and (d) level of caregiver involvement in treatment was not associated with the amount of change in children's externalizing behaviors as measured by t-scores on the CBCL; however, level of caregiver involvement in treatment was associated with the amount of change in frequency of externalizing behaviors as measured by the PDR. The following section will discuss the findings of this study including the results, relation to previous research as well as limitations, implications for practitioners, and directions for future research.

Research Question 1

Previous research indicates that children experience significant decreases in child behavior problems as a result of treatment services received from the day treatment centers that were used in this study (Burke, et al., 2010; McTate et al., 2014). Though the literature has shown that internalizing and externalizing symptoms in young children decrease following graduation from the day treatment program, these results have been found using only one outcome measure. Therefore, the current study sought to replicate results found by Burke et al (2010) and McTate et al. (2014) while considering an additional outcome measure that may provide more specific information regarding daily occurrence of externalizing behaviors, the PDR.

It was hypothesized that there would be a significant decrease in externalizing behaviors as measured by t-scores on the CBCL as well as a significant decrease in frequency of externalizing behaviors on the PDR. Results of this study found a significant decrease in externalizing behaviors from Time 1 (prior to receiving treatment) to Time 2

(concurrently receiving treatment) based on t-scores from the CBCL. This finding is consistent with previous research by Burke and colleagues (2010) as well as McTate and colleagues (2014). In addition, the current study found a significant decrease in the frequency of externalizing behaviors as measured by the PDR. Together, the results of this study confirm the hypothesis, demonstrating that externalizing behaviors significantly decreased from Time 1 to Time 2. An additional important finding through a frequency analysis of the Time 2 CBCL Externalizing Behaviors scale indicated that 76% of participants' t-scores decreased to levels below those representing clinical significance (i.e., t-scores < 70).

The results of the current study extend the literature on day treatment programs for young children with severe externalizing behavior by using a different measure (the PDR) to evaluate change in participant externalizing behaviors. This is the first study that has investigated the use of the PDR to evaluate the frequency of child behavior change in a day treatment setting. The use of the PDR allows caregivers to track the daily occurrence of 33 discrete behaviors across a period of three days, in comparison to recalling an estimate of global behavior across a period of two months, such as in the CBCL measure. The use of both measures in the current study provides a unique extension of the current literature and additional support for the value of day treatment programs for young children with externalizing problems.

Results of the current study provide important implications for clinical practice, beyond that of day treatment services. The use of the CBCL in clinical practice provides a measure of not only externalizing symptomology, but also provides a measure of internalizing symptomology. While this was not the focus of the current study, the CBCL

can be used in clinical practice to gain an overall understanding of a child's global functioning. In contrast, the use of the PDR in clinical practice provides a more focused description of the frequency of a child's discrete behaviors, which also can be used as a data collection tool to monitor a child's progress while in treatment. When used in conjunction, the CBCL and PDR provide clinicians with tools to assess pretreatment functioning (global and specific), as well as to monitor progress throughout treatment. The measures therefore complement one another, as the CBCL provides information regarding domains of functioning for therapeutic focus, while the PDR provides specific behaviors from which treatment goals can be derived. Importantly, the measures take caregivers relatively little time to complete.

Research Question 2

Research investigating the impact of treatment length on treatment outcomes is limited, particularly in the area of treatment for children. Moreover, studies have produced mixed results. Several studies have found that length of treatment influences treatment outcomes (e.g., Zyoch, 2012; Thomas & Zimmer-Gembeck, 2007); however, other studies have found that length of treatment has little impact (e.g., Castillo et al., 2014; Riley, Srikanth, Choi, & McCarty, 2012).

Results from the current study did not support the hypotheses that the amount of change in t-scores on the CBCL and frequency of externalizing behaviors reported on the PDR would increase as length of treatment increased. Specifically, there was no significant relationship between the amount of time participants spent in treatment and the amount of change in CBCL externalizing scores from Time 1 to Time 2. Similarly there was no significant relationship between length of treatment and the amount of

change in the frequency of externalizing behavior on the PDR from Time 1 to Time 2. Participants in this study experienced clinically significant decreases in externalizing behaviors and this did not vary by the length of time participants spent in treatment.

Findings in this study were consistent with those found in previous research examining treatment length (Castillo et al., 2014; Riley et al., 2012). However, the present study extended this research by examining externalizing behavior symptoms whereas previous literature examined PTSD symptomology (Castillo et al., 2014) and substance abuse (Riley et al., 2012). While the present study provides contributions to the small body of literature examining treatment length, findings should be interpreted with caution due to the small sample size and significant variability in participant length of treatment. In addition, the current study calculated treatment length from the first day a child started the day treatment program, until the day a child was discharged from treatment. This calculation did not take into account absences from the day treatment program, the number of individual therapy sessions attended per week, or the number of family therapy sessions attended per week. Zyoch (2012) included an assessment of weekly attendance rate and found that as attendance rate increased, achievement in reading fluency also increased. Future research examining treatment integrity in the domain of treatment exposure should consider the inclusion of number of absences as well as number of therapy sessions attended.

Research Question 3

Research has found that children who have prior exposure to trauma present with more externalizing behavior problems than those not exposed to trauma (Kim & Cicchetti, 2003; Milot, Ethier, St-Laurent, & Provost, 2010). Children receiving day

treatment services from the multicomponent community-based day treatment program vary in the number of prior traumatic exposures. In the current study, the type of traumatic events caregivers reported ranged from 0 events to 12 events on the TESI-PRR-
B. Previous research has not examined whether children with prior exposure to trauma have greater externalizing behaviors prior to starting treatment at these particular day treatment centers. Therefore, the current study sought to determine whether prior exposure to trauma had an association with the severity of participants' externalizing symptoms (as measured by Time 1 t-scores on the CBCL and frequency of externalizing behaviors on the PDR) prior to receiving treatment.

It was hypothesized that participants who had prior exposure to trauma would have greater externalizing behavior t-scores on the CBCL prior to starting treatment and would have greater frequency of externalizing behaviors on the PDR. Results of this study indicate that participants with prior exposure to trauma did not have significantly higher t-scores on the CBCL externalizing behaviors subscale; however, participants with prior exposure to trauma did present with a significantly greater frequency of externalizing behaviors on the PDR. In fact, for every 1.02 unit of change in trauma, there is a 1 unit of change in frequency of externalizing behavior on the PDR. Therefore, this study partially confirmed the hypothesis by finding that the number of traumatic exposures significantly predicted increases in the frequency of externalizing behaviors on the PDR prior to starting the day treatment program. Reasons for the difference in findings by outcome measures may be due to the difference in global domains versus narrow domains assessed by the measures. The CBCL is a measure that assesses general functioning in a variety of domains including externalizing as well as internalizing

symptoms. In contrast, the PDR measures the daily occurrence of very specific externalizing behaviors. In addition, differences may be due to the fact that caregivers are asked to rate their child's behavior over the course of *two months* on the CBCL versus three days on the modified PDR.

The current study also sought to determine whether there was a relationship between participants' prior exposure to trauma and decreases in externalizing behaviors following treatment as measured by the externalizing subscale of the CBCL and by frequency of externalizing behaviors on the PDR. It was hypothesized that there would be an association between participant exposure to trauma and response to treatment. Specifically, as trauma exposure increased, the amount of change in externalizing behaviors would increase. Results of the current study partially confirmed this hypothesis. Findings indicated that there was not a significant association between the amount of change on the CBCL externalizing subscale and participant prior exposure to trauma. However, results indicated a significant association between the amount of change in frequency of externalizing behaviors on the PDR and prior exposure to trauma. As amount of trauma exposure increased, the amount of change in frequency of externalizing behaviors also increased. As stated above, the reason for the differences in the amount of change in outcome measure may be due to the broadband nature of the CBCL. The current study provides evidence of the importance of using both broadband and narrowband measures in the assessment of child behavior problems.

Findings of the current study are consistent with previous literature, in that participants with prior exposure to trauma presented with increased externalizing behaviors prior to receiving treatment services as indicated by the PDR. However, these

results were not found using the CBCL. The current study extends the literature by using two outcome measures to assess participant externalizing behavior and provides evidence of the importance of using both broadband and narrowband measures in the assessment of child behavior problems. While this study focused on externalizing behaviors, future research examining trauma exposure may consider assessing internalizing symptoms, using both parent and self-report measures.

The current study also found that amount of trauma exposure has an association with the amount of change in the frequency of externalizing behaviors, supporting the multicomponent community day-treatment program as a treatment for young children presenting with prior exposure to trauma and externalizing symptoms. This finding is consistent with previous research that supported the use of PCIT (Thomas, 2012) and CPP (Lieberman et al., 2005) for children with prior exposure to trauma. The current study extends previous research by including a measure of the direct frequency of externalizing behaviors. In addition, while there are similarities between the treatment programs, the program in the current study differs, as it is a day treatment program and designed for participants with more severe behavior problems. In fact, participants in the current study presented with more severe externalizing behavior symptoms according to the Externalizing Behaviors subscale of the CBCL ($M = 71.2$) than participants in the study by Thomas and colleagues (2012; $M = 64.8$) and more severe total behaviors according to the Total Problems scale of the CBCL ($M = 66.0$) than participants in the study by Lieberman and colleagues (2005; $M = 61.46$). Consistent with the previous studies, the current study found significant decreases in symptoms using the CBCL as an outcome measure. However, the current study did not find a relationship among the

amount of decreases in externalizing behaviors and number of trauma exposures using the CBCL as an outcome measure.

The results of this study have important implications for clinical practice. The findings provide initial support for the day treatment program for children with severe externalizing problems and prior exposure to trauma. Importantly, the focus of this study was not on symptoms of PTSD, rather it was on externalizing behaviors. Future research should consider and assess the association between the day treatment program and PTSD symptomology.

Research Question 4

Previous research demonstrates the importance of caregiver involvement in youths' education, including preschool (Hindman & Morrison, 2012; Hindman et al., 2010) kindergarten (Galindo & Sheldon, 2012), and across grades (Desforges & Abouchaar, 2003; Sheldon, Epstein, & Galindo, 2010). These studies have shown that caregiver involvement has an association with increases in early literacy and math skills, as well as later academic achievement. Research examining the importance of caregiver involvement in therapy remains much less studied. Despite the dearth of research, Podell and Kendall (2011) found that higher rates of parent attendance and parent engagement in cognitive behavioral therapy sessions are associated with greater outcomes for youth in therapy for anxiety symptoms. The current study sought to contribute to this gap in the literature to examine whether level of caregiver involvement in therapy had an association with participants' response to treatment.

It was hypothesized that the amount of change in externalizing behaviors would increase as caregiver involvement in treatment increased. Results of this study partially

confirm this hypothesis. Findings showed a non-significant relation between the amount of change in externalizing behaviors on the CBCL and caregiver level involvement in treatment. However, results indicated a significant relationship between the amount of change in frequency of externalizing behaviors on the PDR and caregiver involvement in treatment. In other words, findings regarding the amount of change on the CBCL were not consistent with the hypothesis while findings from the PDR were consistent with the hypothesis. A closer examination of the data indicates a significant difference in the amount of change between the Medium Involvement and High Involvement groups. This finding is likely due to the small number of participants in the Low Involvement group ($n = 5$), which may have contributed to insufficient power to detect statistical differences.

While this study extended current research on caregiver involvement in therapy, future research should look further into the level of caregiver involvement in treatment for children with severe externalizing behaviors using equal group sizes. Results indicated that participants in this study were relatively involved in the treatment process according to the CITS. Because this measure was a researcher-developed scale, it is important for future research to further examine the psychometric properties. Important questions, such as “Were caregivers in this study relatively involved, resulting in a small number of participants in the Low Involvement group?” or, “Did the selected measure not adequately measure caregiver involvement?” Future research should further examine the tool’s psychometric properties and consider the use of this tool for caregiver involvement in the treatment of other presenting problems.

Treatment Integrity

The community-based day treatment centers adhere to a multicomponent treatment program that incorporates strict treatment components including the use of praise and consequences. The results of the current study indicate that the components of the treatment program (i.e., delivery of praise and consequences) were delivered with acceptable levels of integrity, determined by the day treatment centers. It is important to note that staff at each day treatment site completed the direct observations of the treatment program. While the programs emphasize the importance of being objective in their observations, it is possible that there may have been bias in the observations.

Social Validity

The treatment offered at the multicomponent, community-based, day treatment centers was perceived to be a highly acceptable intervention for caregivers of children with severe externalizing behaviors. Previous research deemed a total score of 27 on the Treatment Evaluation Inventory, Short Form, as moderate acceptance of an intervention (Jones, Eyberg, Adams, & Boggs, 1998). Caregivers in the current study therefore perceived the treatment program as highly acceptable with a mean acceptability score of 37.10.

Limitations

There are several limitations to the current study and the reader should exercise caution when interpreting the results. First, the sample size used in this study of $N = 50$ may have been too small to adequately detect significant differences among variables. While results of the initial power analysis suggested sufficient power was available to detect statistical differences, the result of scores on measures (e.g., CITS scores) resulted

in (a) unbalanced groups; and (b) smaller group sizes than anticipated. With more participants and equal number of participants in groups, the research question involving the impact of caregiver involvement in therapy would have likely been better addressed. Relatedly, the number of participants was not equal among day treatment sites and therefore comparisons among sites could not be conducted. Finally, related to participants in the sample, the number of male participants ($N = 41$) was significantly greater than female participants ($N = 9$). The gender imbalance impacts the generalizability of the results of this study.

While the measures for the current study were carefully selected, there were limitations to the assessment of prior exposure to trauma and the level caregiver involvement in therapy. The TESI-PRR-B asked caregivers to identify whether or not their child was exposed to various traumatic events by marking yes or no. This variable was therefore based solely on caregiver report; it is possible that caregivers did not disclose or identify all traumatic events. In addition, this measure did not take into account repeated or multiple occurrences of one type of traumatic event (e.g., repeated sexual abuse). The CITS was a researcher-developed measure and therefore, lacks research to support its psychometric properties. The current study found that caregivers were relatively involved in the treatment process; however, it is not certain whether caregivers were actually highly involved or if the CITS was an inadequate measure of this construct. Future research should consider an examination of the CITS psychometric properties, paying close attention to the validity of the measure.

Finally, the measures of this study were placed in packets and presented to caregivers in a standardized order; however, caregivers may have completed the

measures in a different manner than they were presented. This may have impacted caregiver responding on specific measures. For example, if completing the TESI-PRR-B prior to completing the CBCL, caregivers' estimates of internalizing symptoms may be elevated given the immediacy of that traumatic event present in their thoughts. Future research should counterbalance the order in which the measures are presented to control for order effects.

Implications and Future Directions

The results of this study lend preliminary support to the hypotheses that (a) externalizing behaviors decrease following attendance in a multicomponent, community-based, day treatment program; (b) children who present with prior exposure to trauma begin treatment with higher levels of externalizing behaviors; (c) participants with prior exposure to trauma experience significant decreases in externalizing behavior symptoms following participation in the day treatment program; and (d) increased level of caregiver involvement in treatment yields greater decreases in externalizing behavior symptoms. Results of this study did not support the hypothesis that longer time spent in treatment would produce greater decreases in externalizing behavior symptoms.

These results have important implications for the current knowledge base and clinical practice regarding young children with severe externalizing behaviors. While previous research has shown significant decreases in externalizing behavior among young children based on CBCL t-scores, the current study replicated these results and found significant decreases in the *frequency* of externalizing behaviors using an additional outcome measure, the Parent Daily Report. In addition, findings of this study show promising results for the use of the multicomponent community-based day treatment

programs for special populations- specifically, for young children with prior exposure to trauma and presenting with severe externalizing behaviors.

An additional important finding of the current study supports the use of multiple measures to assess externalizing behavior as the outcome variable, which is highly relevant to clinical practitioners and could be generalized to other behavioral difficulties as well. Based on findings from the current study, clinicians should consider the use of multiple measures to assess and monitor clients' response to treatment.

Preliminary results of this study partially support the idea that level of caregiver involvement in treatment matters. Due to the small group size of the Low Involvement group, conclusions are difficult to confirm. However, it is important for clinical practitioners to consider the level of involvement of caregivers when working with young children with severe externalizing behaviors. Practitioners should consider the level of involvement of their caregivers and should consider methods to increase that involvement. Additional research is certainly needed to further examine this variable.

Future research should address the limitations of this study (e.g., small sample size, unbalanced groups by site, gender, and level of caregiver involvement) and replicate the procedures with a larger, more diverse sample. Importantly, primary caregivers play an integral role in the development and outcomes of their child's life; yet, the impact of their level of involvement in treatment remains highly understudied. Future research should continue to examine the impact of primary caregivers in the treatment of childhood problems. Specifically, the psychometric properties of the Caregiver Involvement in Treatment Scale should be examined, paying particular attention to the measure's validity in the assessment of caregiver involvement.

In addition, future research should consider the impact of caregiver involvement in therapy on the treatment of other childhood problems including symptoms of internalizing disorders. While this study was limited to the examination of externalizing behavior problems, future research examining the outcomes for children receiving treatment from a multicomponent, community-based day treatment center should consider other outcome variables (e.g., level of caregiver stress, child social skills, internalizing symptoms).

Summary

The purpose of this study was to examine factors associated with young children's response to treatment at a multicomponent, community-based day treatment program including treatment characteristics (e.g., treatment length), child characteristics (e.g., prior exposure to trauma), and family characteristics (e.g., caregiver involvement in therapy). Participants included 50 caregivers of children receiving services at one of three day treatment centers in the midwestern United States. Data were collected over a nine-month period and consisted of four cycles plus one booster session. Results of this study demonstrated that externalizing behaviors decreased following attendance in the day treatment program. These findings are consistent with previous research (e.g., McTate et al., 2014) but extended the literature by using multiple outcome measures to assess child response to treatment.

In addition, this study found a relationship between exposure to trauma and externalizing symptoms prior to starting treatment, in that as amount of trauma exposure increased, externalizing behavior symptoms also increased. Participants with prior exposure to trauma also demonstrated significant decreases in externalizing behavior

symptoms following participation in the day treatment program. This finding has important implications for the treatment of young children presenting with severe externalizing behavior problems, but who have a history of trauma exposure. Finally, this study lends preliminary support to the importance of caregiver involvement in treatment. Specifically this study found that increased level of caregiver involvement in treatment yielded greater decreases in externalizing behavior symptoms. The current study aimed to identify factors that influence young children's response to day treatment services. While several factors were identified, future research should address the limitations outlined in this study and consider additional characteristics that may help to enhance the lives of this unique population.

References

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the Achenbach System of Empirically Based Assessment (ASEBA) school-age forms and profiles*. Burlington, VT: University of Vermont Research on Children, Youth, and Families.
- Ackerman, P. T., Newton, J. E., McPherson, W. B., Jones, J. G., & Dykman, R. A. (1998). Prevalence of posttraumatic stress disorder and other psychiatric diagnoses in three groups of abused children (sexual, physical, and both). *Child Abuse & Neglect*, 22, 759-774. doi: 10.1016/S0145-2134(98)00062-3
- Ang, R. P., Rescorla, L. A., Achenbach, T. M., Ooi, Y.P., Fung, D. S. S., & Woo, B., (2012). Examining the criterion validity of CBCL and TRF problem scales and items in a larger Singapore sample. *Child Psychiatry & Human Development*, 43, 70-86. doi: 10.1007/s10578-011-0523-2
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Anselmi, L., Barros, F. C., Teodoro, M., Piccinini, C. A., Menezes, A. M., Araujo, C. L., & Rohde, L. A. (2008). Continuity of behavioral and emotional problems from pre-school years to pre-adolescence in a developing country. *Journal of Child Psychology and Psychiatry*, 49, 499-507. doi: 10.1111/j.1469-7610.2007.01865
- Arseneault, L., Walsh, E., Trzesniewski, K., Newcombe, R., Caspi, A., & Moffitt, T. E. (2006). Bullying victimization uniquely contributes to adjustment problems in young children: A nationally representative cohort study. *Journal of the American Academy of Pediatrics*, 118, 130-138. doi: 10.1542/peds.2005-2388

- Augimeri, L. K., Farrington, D. P., Koegl, C. J., & Day, D. M. (2007). The SNAP under 12 outreach project: Effects of a community based program for children with conduct problems. *Journal of Child and Family Studies*, 16, 799-807. doi: 10.1007/s10826-006-9126-x
- Bandura, A. (1977). *Social learning theory*. New York, NY: General Learning Press.
- Barbarin, O. (2007). Mental health screening of preschool children: Validity and reliability of ABLE. *The American Journal of Orthopsychiatry*, 77, 402-418. doi: 10.1037/0002-9432.77.3.402
- Beyer, T., Postert, C., Muller, J. M., & Furniss, T. (2012). Prognosis and continuity of child mental health problems from preschool to primary school: Results from a four-year longitudinal study. *Child Psychiatry and Human Development*, 43, 533-543. doi: 10.1007/s10578-012-0282-5
- Bierman, K. L., Coie, J. D., Dodge, K. A., Greenberg, M. T., Lochman, J.E., McMahon, R. J., et al. (2010). The effects of a multiyear universal social-emotional learning program: The role of student and school characteristics. *Journal of Consulting and Clinical Psychology*, 78, 156-168. doi: 10.1037/a0018607
- Briggs, E. C., Fairbank, J. A., Greeson, J. K. P., Layne, C. M., Steinberg, A. M., Amaya-Jackson, L. A., Ostrowski S. A., Gerrity, E. T., Elmore, D. L., Belcher, H. M., & Pynoos, R. S. (2012). Links between child and adolescent trauma exposure and service use histories in a national clinic-referred sample. *Psychological Trauma Theory, Research, Practice, and Policy*, 5, 101-109. doi:10.1037/a0027312
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human

development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology (6th ed.): Volume 1, Theoretical models of human development* (pp. 793-828).

Hoboken, NJ: John Wiley & Sons.

Bub, K. L., McCartney, K., & Willett, J. B. (2007). Behavior problem trajectories and first-grade cognitive ability and achievement skills: A latent growth curve analysis. *Journal of Educational Psychology*, 99, 653-670. doi: 10.1037/0022-0663.99.3.653

Butler, A. M., & Eyberg, S. M. (2006). Parent-child interaction therapy and ethnic minority children. *Vulnerable Children and Youth Studies*, 1, 246-255. doi: 10.1080/17450120600973577

Burke, R. V., Kuhn, B. R., Peterson, J. L., Peterson, R. W., & Badura Brack, A. S. (2010). "Don't kick me out!": Day treatment for two preschool children with severe behavior problems. *Clinical Case Studies*, 9, 28-40. doi: 10.1177/1534650109349293

Campbell, S. B. (2002). *Behavior problems in preschool children: Clinical and developmental issues* (2nd ed.). New York, NY: Guilford Press.

Campbell, S. B. (2006). Maladjustment in preschool children: A developmental psychopathology perspective. In K. McCartney, & D. Phillips (Eds.), *Blackwell handbook of early childhood development* (pp. 358-378). Malden, MA: Blackwell.

Campbell, S. B., Shaw, D. S., & Gilliom, M. (2000). Early externalizing behavior problems: Toddlers and preschoolers at risk for later maladjustment. *Development and Psychopathology*, 12, 467-488. doi: 10.1017/S0954579400003114

Castillo, D. T., Lacefield, K., C'de Baca, J., Blankenship, A., & Qualls, C. (2014).

Effectiveness of group-delivered cognitive therapy and treatment length in women veterans with PTSD. *Behavioral Sciences*, 4, 31-41. doi:

10.3390/bs4010031

Chamberlain, P., & Reid, J. (1987). Parent observation and report of child symptoms.

Behavioral Assessment, 9, 97-109.

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology*, 8, 597-600. doi:

10.1017/S0954579400007318

Clark, S. E., & Jerrott, S. (2012). Effectiveness of day treatment for disruptive behavior disorders: What is the long-term clinical outcome for children? *Journal of the*

Canadian Academy of Child and Adolescent Psychiatry, 21, 204-212.

Coates, S., & Gaensbauer, T. J. (2009). Event trauma in early childhood: Symptoms, assessment, intervention. *Child and Adolescent Psychiatric Clinics of North*

America, 18, 611-626, doi: 10.1016/j.chc.2009.03.005

Cohen, J. A., & Mannarino, A. P. (2008). Trauma-focused cognitive behavioural therapy for children and parents. *Child and Adolescent Mental Health*, 13, 158-162. doi:

10.1111/j.1475-3588.2008.00502.x

Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York, NY: Guilford Press.

Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2010). Trauma-focused cognitive-

- behavioral therapy for traumatized children. In J. R. Weisz & A. E. Kazdin (Eds.) *Evidence-Based Psychotherapies for Children and Adolescents, Second Edition* (pp. 295-311). New York, NY: Guilford Press.
- Cohen, N. J., Sullivan, J., Minde, K., Novak, C., & Helwig, C. (1981). The relative effectiveness of methylphenidate and cognitive behavior modification in the treatment of kindergarten-aged hyperactive children. *Journal of Abnormal Child Psychology*, 9, 43-54. doi: 10.1007/BF00917856
- Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2008). Preschoolers' emotion regulation strategy understanding: Relations with emotion socialization and child self-regulation. *Social Development*, 18, 324-352. doi: 10.1111/j.1467-9507.2008.00503.x
- Cook, A., Blaustein, M., Spinazzola, J., & van der Kolk, B. (2003). Complex trauma in children and adolescents: White paper from the National Child Traumatic Stress Network Complex Trauma Task Force. Retrieved on July 2, 2012 from [sites/default/files/assets/pdfs/ComplexTrauma_All.pdf](http://www.nctsn.org/sites/default/files/assets/pdfs/ComplexTrauma_All.pdf)
- Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., . . . & van der Kolk, B. (2005). Complex trauma in children and adolescents. *Psychiatric Annals*, 35, 390-398.
- Cox, C., Kotch, J., & Everson, M. (2003). A longitudinal study of modifying influences in the relationship between domestic violence and child maltreatment. *Journal of Family Violence*, 18, 5-17. doi:10.1023/A:1021497213505
- Crews, S. D., Bender, H., Cook, C. R., Gresham, F. M., Kern, L., & Vanderwood, M.

(2007). Risk and protective factors of emotional and/or behavioral disorders in children and adolescents: A metaanalytic synthesis. *Behavioral Disorders*, 32, 64-77.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests.

Psychological Bulletin, 52, 281-302. doi: 10.1037/h0040957

Cunningham, C. E., Bremner, R., & Boyle, M. (1995). Large group community-based parenting programs for families of preschoolers at risk for disruptive behavior disorders: Utilization, cost effectiveness, and outcome. *Journal of Child Psychology and Psychiatry*, 36, 1141-1159. doi: 10.1111/j.1469-7610.1995.tb01362.x

Dane, A. V., & Schneider, B. H. (1998). Program integrity in primary and early secondary prevention: Are implementation effects out of control? *Clinical Psychology Review*, 18, 23-45. doi: 10.1016/S0272-7358(97)00043-3

Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1998). Multiple risk factors in the development of externalizing behavior problems: Group and individual differences. *Development and Psychopathology*, 10, 469-493. doi: 10.1017/S0954579498001709

Desforges, C., & Abouchaar, A. (2003). *The impact of parental involvement, parental support, and family education on pupil achievement and adjustment: A literature review*. Nottingham, UK: DfES Publications.

Dodge, K. A., (2003). Do social information processing patterns mediate aggressive behavior? In B. B. Lahey, T. E. Moffitt, & A. Caspi (Eds.), *Causes of conduct disorders and delinquency* (pp. 254-274). New York, NY: Guilford Press.

- Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, 39, 349-371. doi: 10.1037/0012-1649.39.2.349
- Durlak, J. A., & DuPre, E. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, 41, 327-350. doi: 10.1007/s10464-008-9165-0
- Egger, H. L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology and Psychiatry*, 47, 313-337. doi: 10.1111/j.1469-7610.2006.0618.x
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149-1160. doi:10.3758/BRM.41.4.1149
- Fergusson, D. M., Swain, N. R., & Horwood, L. J. (2002). Deviant peer affiliations, crime, and substance use: A fixed effects regression analysis. *Journal of Abnormal Child Psychology*, 30, 419-430. doi: 10.1023/A:1015774125952
- Fidell, L. S., & Tabachnick, B. G. (2013). *Using multivariate statistics, sixth edition*. Pearson.
- Ford, J. D., & Cloitre, M. (2009). Best practices in psychotherapy for children and adolescents. In C. A. Courtois & J. D. Ford (Eds.) *Treating complex traumatic stress disorders: An evidence-based guide* (pp. 59-81.) New York, NY: Guilford Press.
- Foster, J., Kuperminc, G., & Price, A. (2004). Gender differences in posttraumatic stress

and related symptoms among inner-city minority youth exposed to community violence. *Journal of Youth and Adolescence*, 33, 59–69.

doi:10.1023/A:1027386430859

- Galindo, C., & Sheldon, S. B. (2012). School and home connects and children's kindergarten achievement gains: The mediating role of family involvement. *Early Childhood Research Quarterly*, 27, 90-103. doi: 10.1016/j.ecrewq.2011.05.004
- Garmezy, N., & Rutter, M. (1983). *Stress, coping, and development in children*. New York, NY: McGraw-Hill.
- George., D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston, MA: Allyn & Bacon.
- Ghosh-Ippen, C., Ford, J., Racusin, R., Acker, M., Bosquet, K., Rogers, C., Ellis, C., Schiffman, J., Ribbe, D., Cone, P., Lukovitz, M., & Edwards, J. (2002). *Trauma Events Screening Inventory-Parent Report Revised*. San Francisco: The Child Trauma Research Project of the Early Trauma Network and The National Center for PTSD Dartmouth Child Trauma Research Group.
- Gilliam, W. S. (2005). *Prekindergarteners left behind: Expulsion rates in state prekindergarten systems*. New Haven, CT: Yale University Child Study Center.
- Greer, B. D., Neidert, P. L., Dozier, C. L., Payne, S. W., Zonneveld, K. L. M., & Harper, A. M. (2013). Functional analysis and treatment of problem behavior in early education classrooms. *Journal of Applied Behavior Analysis*, 46, 289-295. doi: <http://dx.doi.org/10.1002/jaba.10>
- Greeson, J. K., Briggs, E. C., Layne, C. M., Belcher, H. M., Ostrowski, S. A., Kim, S.,

- Lee, R. C., Vivrette, R. L., Pynoos, R. S., & Fairbank, J. A. (2014). Traumatic childhood experiences in the 21st century: Broadening and building on the ACE studies with data from the National Child Traumatic Stress Network. *Journal of Interpersonal Violence, 29*, 536–556. doi:10.1177/0886260513505217
- Gresham, F. M., Cook, C. R., Crews, S. D., & Kern, L. (2004). Social skills training for children and youth with emotional and behavioral disorders: Considerations and future directions. *Behavior Disorders, 30*, 32-46.
- Grimm, K. J., Steele, J. S., Mashburn, A. J., Burchinal, M., & Pianta, R. C. (2010). Early behavioral associations of achievement trajectories. *Developmental Psychology, 46*, 976-983. doi: <http://dx.doi.org/10.1037/a0018878>
- Grizenko, N., Papineau, D., & Sayegh, L. (1993). A comparison of day treatment and outpatient treatment for children with disruptive behavior problems. *Canadian Journal of Psychiatry, 38*, 432-435.
- Harrell, A. W., Mercer, S. H., & DeRosier, M. E. (2009). Improving the social-behavioral adjustment of adolescents: The effectiveness of a social skills group intervention. *Journal of Child and Family Studies, 18*, 378-387. doi:10.1007/s10826-008-9241-y
- Hindman, A. H., & Morrison, F. J. (2012). Differential contributions of three parenting dimensions to preschool literacy and social skills in a middle income sample. *Merrill-Palmer Quarterly, 58*, 191-223. doi: 10.1353/mpq.2012.0012
- Hindman, A. H., Skibbe, L. E., Miller, A., & Zimmerman, M. (2010). Ecological

- contexts and early learning: Contributions of child, family, and classroom factors during Head Start, to literacy and mathematics growth through first grade. *Early Childhood Research Quarterly*, 25, 235-250. doi: 10.1016/j.ecresq.2009.11.003
- Hudley, C., Britsch, B., Wakefield, W., Smith, T., DeMorat, M., & Cho, S. (1998). An attribution retraining program to reduce aggression in elementary school students. *Psychology in the Schools*, 35, 271-282. doi: [http://dx.doi.org/10.1002/\(SICI\)1520-6807\(199807\)35:3<271::AID-PITS7>3.0.CO;2-Q](http://dx.doi.org/10.1002/(SICI)1520-6807(199807)35:3<271::AID-PITS7>3.0.CO;2-Q)
- Hutcheson, G. D. (2011). Ordinary Least-Squares Regression. In L. Moutinho and G.D. Hutcheson (Eds.), *The SAGE Dictionary of Quantitative Management Research* (pp. 224-228). Thousand Oaks, CA: SAGE Publications
- Ingvarsson, E. T., Hanley, G. P., Welter, K. M. (2009). Treatment of escape-maintained behavior with positive reinforcement: The role of reinforcement contingency and density. *Education and Treatment of Children*, 32, 371-401. doi: <http://dx.doi.org/10.1353/etc.0.0064>
- Jerrott, S., Clark, S.E., & Fearon, I. (2010). Day treatment for disruptive behaviour disorders: Can a short-term program be effective? *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 19, 88-93.
- Jones, M. L., Eyberg, S. M., Adams, C. D., & Boggs, S. R. (1998). Treatment acceptability of behavioral interventions for children: An assessment by mothers of children with disruptive behavior disorders. *Child and Family Behavior Therapy*, 20, 16-26. doi: http://dx.doi.org/10.1300/J019v20n04_02
- Kaffman, A. (2009). The silent epidemic of neurodevelopmental injuries. *Biological*

Psychiatry, 66, 624-626. doi: 10.1016/j.biopsycho.2009.08.002

Kazdin, A. E. (1996). Dropping out of child therapy: Issues for research and implications for practice. *Clinical Child Psychology and Psychiatry*, 1, 133-156. doi:

<http://dx.doi.org/10.1177/1359104596011012>

Kazdin, A. E. (2003). Problem-solving skills training and parent management training for conduct disorder. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 241-262). New York, NY: Guilford Press.

Kazdin, A. E., Esveldt-Dawson, K., French, N. H., & Unis, A. S. (1987). Problem-solving skills training and relationship therapy in the treatment of antisocial child behavior. *Journal of Consulting and Clinical Psychology*, 55, 76-85. doi:

10.1037/0022-006X.55.1.76

Kelley, M., Heffer, R., Gresham, F., & Elliott, S. (1989). Development of a modified treatment evaluation inventory. *Journal of Psychopathology and Behavioral Assessment*, 11, 235-247. doi: <http://dx.doi.org/10.1007/BF00960495>

Kim, J., & Cicchetti, D. (2003). Social self-efficacy and behavior problems in maltreated children. *Journal of Clinical Child and Adolescent Psychology*, 32,

106-117.10.1097/01.chi.0000181047.59702.58

Lieberman, A. F., & Van Horn, P. V. (2004). Assessment and treatment of young children exposed to traumatic events. In J. D. Osofsky (Ed.) *Young Children and Trauma: Intervention and Treatment* (pp. 111-138). New York, NY: Guilford Press.

Lieberman, A. F., & Van Horn, P. V. (2005). *Don't hit my mommy*. Washington, DC:

Zero to Three Press.

- Lieberman, A. F., Van Horn, P., & Ghosh Ippen, C. (2005). Toward evidence-based treatment: Child-parent psychotherapy with preschoolers exposed to marital violence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44, 1241-1248. doi: 10.1097/01.chi.0000181047.59702.58
- Little, S. G., Akin-Little, A., & Gutierrez, G. (2009). Children and traumatic events: Therapeutic techniques for psychologists in the schools. *Psychology in the Schools*, 46, 199-205. doi: 10.1002/pits.20364.
- Lochman, J. E., Wells, K., & Lenhart, L. (2008). *Coping power: Child group facilitator's guide*. New York, NY: Oxford University Press.
- Malti, T., Ribeaud, D., & Eisner, M. P. (2011). The effectiveness of two universal preventive interventions in reducing children's externalizing behavior: A cluster randomized controlled trial. *Journal of Clinical Child & Adolescent Psychiatry*, 40, 677-692. doi: 10.1080/15374416.2011.597084
- McMahon, R. J. (1994). Diagnosis, assessment, and treatment of externalizing problems in children: The role of longitudinal data. *Journal of Consulting and Clinical Psychology*, 62, 901-917. doi: <http://dx.doi.org/10.1037/0022-006X.62.5.901>
- McMahon, R. J., & Frick, P. J. (2007). Conduct and oppositional disorders. In E. J. Mash & R. A. Barkley (Eds.), *Assessment of childhood disorders* (pp. 132-183). New York, NY: Guilford Press.
- McMahon, R. J., Wells, K. C., & Kotler, J. S. (2006). Conduct problems. In E. J. Mash & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 137-268). New York, NY: Guilford Press.

- McNeil, C. B., & Hembree-Kigin, T. L. (2010). *Parent-child interaction therapy, Second Edition*. New York, NY: Springer.
- McTate, E., Badura Brack, A., Handal, P. J., & Burke, R. V. (2014). A program intervention for pediatric bipolar disorder: Preliminary results. *Child and Family Behavior Therapy, 35*, 279-292. doi: 10.1080/07312707.2013.846194.
- Miller, G. E., & Prinz, R. J. (2003). Engagement of families in treatment for childhood conduct problems. *Behavior Therapy, 34*, 517-534. doi: [http://dx.doi.org/10.1016/S0005-7894\(03\)80033-3](http://dx.doi.org/10.1016/S0005-7894(03)80033-3)
- Milot, T., Ethier, L. S., St-Laurent, D., & Provost, M. A. (2010). The role of trauma symptoms in the development of behavioral problems in maltreated preschoolers. *Child Abuse & Neglect, 34*, 225-234. doi: 10.1016/j.chiabu.2009.07.006
- Montes, G., Lotyczewski, B. S., Halterman, J. S., & Hightower, A. D. (2012). School readiness among children with behavior problems at entrance into kindergarten: Results from a US national study. *European Journal of Pediatrics, 171*, 541-548. doi: 10.1007/s00431-011-1605-4
- Morgan, P. L., Farkas, G., & Wu, Q. (2008). Kindergarten predictors of recurring externalizing and internalizing psychopathology in the third and fifth grades. *Journal of Emotional and Behavioral Disorders, 17*, 67-79. doi: 10.1177/1063426608324724
- Nadler, C. B., & Roberts, M. W. (2013). Parent-collected behavioral observations: An empirical comparison of methods. *Child & Family Behavior Therapy, 35*, 95-109. doi: 10.1080/0731707.2013.789352
- National Scientific Council on the Developing Child. (2008). Mental health problems in

early childhood can impair learning and behavior for life (Working paper No. 6.).

Available from <http://www.developingchild.net>

Norris, F. H. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology*, 60, 409–418. doi: <http://dx.doi.org/10.1037/0022-006X.60.3.409>

Patterson, G. R. (1974). Interventions for boys with conduct problems: Multiple settings, treatments, and criteria. *Journal of Consulting and Clinical Psychology*, 42, 471–481. doi: <http://dx.doi.org/10.1037/h0036731>

Patterson, G. R. (1986). Performance models for antisocial boys. *American Psychologist*, 41, 422–444. doi: <http://dx.doi.org/10.1037/0003-066X.41.4.432>

Patterson, G. R., Reid, J. B., Jones, R. R., & Conger, R. E. (1975). *A social learning approach to family intervention. Vol. 1: Families with aggressive children*. Eugene: OR: Castalia.

Peterson, J., & Peterson, R. (2006). *Mini method or madness*. Omaha, NE: Behaven Kids Press.

Peterson, L., Homer, A. L., & Wonderlich, S. A. (1982). The integrity of independent variables in behavior analysis. *Journal of Applied Behavior Analysis*, 15, 477–492. doi: 10.1901/jaba.1982.15-477

Peterson, J., & Peterson, R. (2011). *Behaven Kids Family Counseling Training Manual*. Omaha, NE: Behaven Kids Press.

Piquero, A. R., Farrington, D. P., Welsh, B. C., Tremblay, R., & Jennings, W. G. (2009).

Effects of early family/parent training programs on antisocial behavior and delinquency. *Journal of Experimental Criminology*, 5, 83-120. doi: 10.1007/s11292-009-9072-x

Podell, J. L., & Kendall, P. C. (2011). Mothers and fathers in family cognitive-behavioral therapy for anxious youth. *Journal of Child and Family Studies*, 20, 182-195. doi: 10.1007/s10826-010-9420-5

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In J. Rolf (Ed.), *Primary prevention of psychopathology: Vol. 3. Social competence in children* (pp. 49-74). Hanover, NH: University Press of New England.

Riley, K. J., Srikanth, P., Choi, D., & McCarty, D. (2012). Treatment length and outcomes among adolescents: a secondary analysis. *Substance Abuse Treatment, Prevention, and Policy*, 7, 35. doi: 10.1186/1747-597X-7-35

Rutter, M. & Sroufe, L. A. (2000). Developmental psychopathology: Concepts and challenges. *Developmental Psychopathology*, 12, 265-296. doi: <http://dx.doi.org/10.1017/S0954579400003023>

Sameroff, A. (2009). The transactional model. In A. Sameroff (Ed.), *The transactional model of development* (pp. 3-21). Washington, DC: American Psychological Association

Sameroff, A. J., & Fiese, B. H. (2000). Transactional regulation: The developmental ecology of early intervention. In J. P. Shonkoff, & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 135-139). New York, NY: Cambridge University Press.

Sameroff, A., & Seifer, R. (1990). Early contributors to developmental risk. In S.

- Weintraub (Ed.), *Risk and protective factors in the development of psychopathology*, (pp. 52-66). New York, NY: Cambridge University Press.
- Sanders, M. R., Markie-Dadds, C., & Turner, K. M. T. (2003). Theoretical, scientific, and clinical foundations of the Triple P-Positive Parenting Program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology*, 68, 624-640. doi: <http://dx.doi.org/10.1037/0022-006X.68.4.624>
- Sayegh, L., & Grizenko, N. (1991). Studies of the effectiveness of day treatment programs for children. *Canadian Journal of Psychiatry*, 36, 246-252.
- Schmeck, K., Poustka, F., Dopfner, M., Pluck, J., Berner, W., Lehmkuhl, G., Fegert, J. M., Lenz, K., Huss, M., & Lehmkuhl, U. (2001) Discriminant validity of the child behavior checklist CBCL/4–18 in German samples. *European Child & Adolescent Psychiatry*, 10, 240–247. doi: <http://dx.doi.org/10.1007/s007870170013>
- Schroeder, C. S., & Gordon, B. N. (2002). *Assessment and treatment of childhood problems*. New York, NY: Guilford Press.
- Schulte, A. C., Easton, J. E., & Parker, J. (2009). Advances in treatment integrity research: Multidisciplinary perspectives on conceptualization, measurement, and enhancement of treatment integrity. *School Psychology Review*, 38, 460-475.
- Sheldon, S. B., Epstein, J. L., & Galindo, C. L. (2010). Not just numbers: Creating a partnership climate to improve math proficiency in schools. *Leadership & Policy in Schools*, 9, 27-48. doi: <http://dx.doi.org/10.1080/15700760802702548>
- Sherburne, S., Utley, B., McConnell, S., & Gannon, J. (1988). Decreasing violent or

aggressive theme play among preschool children with behavior disorders.

Exceptional Children, 55, 166-172.

Skinner, B. F. (1953). *Science and human behavior*. New York, NY: Free Press.

Snyder, H. (2001). Child delinquents. In R. Loeber & D. Farrington (Eds.). *Risk factors and successful interventions*. Thousand Oaks, CA: SAGE.

Spence, S. H., Donovan, C., & Brechman-Toussaint, M. (2000). The treatment of childhood social phobia: The effectiveness of a social skills training-based, cognitive-behavioural intervention, with and without parental involvement. *Journal of Child Psychology and Psychiatry*, 41, 713-726. doi: 10.1111/1469-7610.00659

Taylor, T. K., Eddy, J. M., & Biglan, A. (1999). Interpersonal skills training to reduce aggressive and delinquent behavior: Limited evidence and the need for an evidence-based system of care. *Clinical, Child, and Family Psychology Review*, 2, 169-182. doi: <http://dx.doi.org/10.1023/A:1021855022385>

Thomas, R., & Zimmer-Gembeck, M. J. (2007). Behavioral outcomes of parent-child interaction therapy and triple-p positive parenting program: A review and meta-analysis. *Journal of Abnormal Child Psychology*, 35, 475-495. doi: 10.1007/s10802-007-9104-9

Thomas, R., & Zimmer-Gembeck, M. J. (2012). Parent-child interaction therapy: An evidence-based treatment for child maltreatment. *Child Maltreatment*, 17, 253-268,, doi: 10.1177/1077559512459555

Turner, H. A., Finkelhor, D., Ormrod, R., Hamby, S., Leeb, R. T., Mercy, J. A., & Holt,

- M. (2012). Family context, victimization, and child trauma symptoms: Variations in safe, stable, and nurturing relationships during early and middle childhood. *American Journal of Orthopsychiatry*, 82, 209-219. doi: 10.1111/j1939-0025.2012.01147.x
- Urdan, T. C. (2010). *Statistics in plain English (3rd ed.)*. New York, NY: Routledge.
- U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth, and Families, Children's Bureau. (2015). *Child Maltreatment 2013*. Retrieved on May 12, 2015 from <http://www.acf.hhs.gov/sites/default/files/cb/cm2013.pdf>
- Van der Kolk, B. (2005). Developmental trauma disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, 35, 401-408.
- Van Bokhoven, I., Matthys, W., van Goozen, S. H. M., & van Engeland, H. (2005). Prediction of adolescent outcome in children with disruptive behaviour disorders: A study of neurological, psychological, and family factors. *European Child and Adolescent Psychiatry*, 14, 153-163. doi: 10.1007/s00787-005-0455-x
- Wakschlag, L. S., & Danis, B. (2004). Assessment of disruptive behaviors in young children: A clinical-developmental framework. In R. Del Carmen & A. Carter (Eds.), *Handbook of Infant and Toddler mental health assessment* (pp. 421-440). New York, NY: Oxford University Press.
- Walker, H. M., Ramsay, E., & Gresham, F. M. (2004). *Antisocial behavior in school: Evidence-based practices*. Belmont, CA: Thomson/Wadsworth Learning Publishing.
- Webster-Stratton, C. (1997). Early intervention for families of preschool children with

- conduct problems. In M. J. Guralnick (Ed.), *The effectiveness of early intervention* (pp. 429-453). Baltimore, MD: Brookes.
- Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science*, 4, 81-84. doi: <http://dx.doi.org/10.1111/1467-8721.ep10772327>
- Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology*, 71, 136-149. doi: 10.1037/0022-006X.71.1.136
- Whitemore, E., Ford, M., & Sack, W. H. (2003). Effectiveness of day treatment with proctor care for young children: A four-year follow-up. *Journal of Community Psychology*, 31, 459-468. doi: 10.1002/jcop.10062
- Whittaker, J., Harden, B., See, H., M., Meisch, A.d., & Westbrook, T. R. (2011). Family risk and protective factors: Pathways to early head start toddlers' social-emotional functioning. *Early Childhood Research Quarterly*, 26, 74-86. doi: 10.1016/j.ecresq.2010.0400
- Ziv, Y. (2012). Exposure to violence, social information processing, and problem behavior in preschool children. *Aggressive Behavior*, 38, 429-441. doi: <http://dx.doi.org/10.1002/ab.21452>
- Zvoch, K. (2012). Does fidelity of implementation matter? Using multilevel models to detect relationships between participant outcomes and deliver and receipt of treatment. *American Journal of Evaluation*, 33, 547-565. doi: 10.1177/1098214012452715

Appendix A

AUTHORIZATION FOR THE RELEASE AND USE OF PRIVATE HEALTH INFORMATION (PHI)

By signing this document, you give permission for the release and use of your identifiable Private Health Information (PHI) for the research study described here:

Purpose of the Research:

This research project will examine factors (e.g., child temperament, childhood trauma, family functioning) that influence the impact of treatment services provided by Behaven Kids. Furthermore, this study will examine the level of family involvement in treatment services and the impact on services at Behaven Kids. Your family was selected to participate in this study because you will be receiving treatment services at Behaven Kids.

Procedures:

If your family participates in this research project, you will be asked to complete several rating scales examining various child and family characteristics. During the intake process at Behaven Kids, you will have completed the Child Behavior Checklist (CBCL). The CBCL was the long, blue form with 113 items that you completed. We are asking to use those data in this project.

For this project, you will be asked to complete five rating scales in the first month, and then you will be asked to complete three rating scales twice more over the next two months. Therefore, your participation in this study will be over three months. During the final month, you will also be asked to complete an additional rating scale, which assesses your satisfaction with the services you received at Behaven Kids. The rating scales will take approximately one hour of your time for the first month and approximately 30-45 minutes of your time each following month. We will coordinate this process with your Behaven Kids' therapist to ensure these rating scales are available for you to complete monthly.

In addition, we are asking your permission to review your client file at Behaven Kids to complete a demographic form about your child (i.e., age, diagnosis, medication, etc) and family (marital status, number of family members, income). All of this information you already have provided to Behaven Kids.

The PHI that will be released for this research includes the following:

Child's Name
Child's Age
Child's Gender

Child's Ethnicity
 Number of Siblings
 Child's medications (past and current, if relevant)
 Child's mental health diagnosis
 Caregiver Gender
 Family Background (e.g., biological parent, adoptive parent)
 Caregiver Marital Status
 Number of persons living in home
 Household Income Level

Person(s)/Organization(s) providing PHI: Behaven Kids

Person(s)/Organization(s) receiving PHI: Merilee McCurdy, PhD; Mindy Chadwell, M.A.

Merilee McCurdy and the University of Nebraska – Lincoln agree to protect your health information and will only share this information as described within this research Authorization form. The only reason that your information will be shared with anyone other than the researchers without your permission is if required to do so by law, as directed in the HIPAA Privacy Rule.

The participant must read and initial the following statements:

_____ I understand that my decision to release my PHI is voluntary and Behaven Kids may not withhold treatment, payment, enrollment, and/or eligibility for benefits whether or not I sign this Authorization; however, I will still be included within this research study if PHI is not released.

_____ I understand that I may change my mind and take back this Authorization at any time. PHI already released by Behaven Kids to Dr. Merilee McCurdy; however, cannot be taken back at that time. Any information already released under this Authorization may be used by the researcher.

To revoke this Authorization, please write to or call:

Merilee McCurdy
 114 Teachers College Hall
 Lincoln NE 68588-0345
 (402-472-5191)

This PHI Authorization will expire on or within the following time frame: on November 1, 2015

Participant Signature

Date

Appendix B

Parent Daily Report (PDR)



Behaven Kids Daily Behavior Summary – Parent Version

Start date:		Child's name:						
Adult's name:		Relationship to child:						
At end of each day, put a check mark in the space next to any behavior problems that occurred that day.								
Please put the month and day in each space to the right (For example, 3/29/11, Mon)		Date						
		Day						
1	Animal cruelty							
2	Arguing or talking back							
3	Bedwetting, wetting or soiling pants							
4	Biting							
5	Crying							
6	Defiance							
7	Breaks/damages property on purpose							
8	Setting fires							
9	Hitting or kicking							
10	Hyperactive (running around, fidgeting)							
11	Interrupting							
12	Inappropriate boundaries							
13	Lying							
14	Negative comments about self							
15	Does not follow directions							
16	Refuses to eat or Overeating							
17	Running away							
18	Sexual acting out							
19	Short attention span, difficulty focusing							
20	Sleep problems							
21	Stealing							
22	Swearing							
23	Teasing or provoking							
24	Temper tantrums							
25	Threats or verbal aggression							
26	Whining, pouting, or complaining							
27	Worried, anxious, fearful							
28	Yelling							
29	Withdrawn, sad							
30	Self-harm (head banging, hair pulling)							
31	Suicidal comments							
Please use the list of 31 problem behaviors above to identify the three behavior problems that cause the most problem for you and your child. Write the behavior problems in the space below.								
#1:								
#2:								
#3:								

* The Behaven Kids Daily Behavior Summary form is adapted from the Parent Daily Report (Chamberlain, P. & Reid, J. B. (1987). Parent observation and report of child symptoms, *Behavioral Assessment*, 9, 97-109.)

Appendix C

Traumatic Events Screening Inventory-Parent Report Revised, Brief Version

Page 1 of 2

OFFICE ONLY ID: _____		Respondent: _____	Times @ Clinic: _____	Date: _____	Time Period: _____
Assessor: _____		Vscale: _____	VP1: <input type="checkbox"/> Y <input type="checkbox"/> N	VP2: <input type="checkbox"/> Y <input type="checkbox"/> N	VP3: <input type="checkbox"/> Y <input type="checkbox"/> N
Admin: <input type="checkbox"/> interview <input type="checkbox"/> questionnaire <input type="checkbox"/> mixed					

TRAUMATIC EVENTS SCREENING INVENTORY- PARENT REPORT REVISED – BRIEF VERSION

Children may experience stressful events, which may affect their health and well-being. Please indicate *if* your child has experienced any of these potentially stressful events by answering the shaded questions
If you have any questions or comments about any of the questions, we would be happy to talk to you about them.

<u>SAMPLE ITEM</u> (<i>Instructions are in italics</i>)	
A. Has your child ever had a doctor's visit? <i>Mark your answer in the next column.</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.1 Has your child ever been in a serious accident where someone could have been (or actually was) severely injured or died? (like a serious car or bicycle accident, a fall, a fire, an incident where s/he was burned, an actual or near drowning, or a severe sports injury)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.2 Has your child ever seen a serious accident where someone could have been (or actually was) severely injured or died? (like a serious car or bicycle accident, a fall, a fire, an incident where someone was burned, an actual or near drowning, or a severe sports injury)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.3 Has your child ever been in a serious natural disaster where someone could have been (or actually was) severely injured or died? (like a tornado, hurricane, fire, or earthquake)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.4a Has your child ever experienced the severe illness or injury of someone close to him/her?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.4b Has your child ever experienced the death of someone close to him/her?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.5 Has your child ever undergone any serious medical procedures or had a life threatening illness? Or been treated by a paramedic, seen in an emergency room, or hospitalized overnight for a medical procedure?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.6 Has your child ever been separated from you or another person who your child depends on for love or security for more than a few days <u>OR</u> under very stressful circumstances? For example due to foster care, immigration, war, major illness, or hospitalization.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
1.7 Has someone close to your child ever attempted suicide or harmed him or herself?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
2.1 Has someone ever physically assaulted your child, like hitting, pushing, choking, shaking, biting, or burning? Or punished your child and caused physical injury or bruises. Or attacked your child with a gun, knife, or other weapon? (This could be done by someone in the family or by someone not in your child's family).	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
2.2 Has someone ever directly threatened your child with serious physical harm?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
2.3 Has someone ever mugged your child? Or has your child been present when a family member, other caregiver, or friend was mugged?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
2.4 Has anyone ever kidnapped your child? (including a parent or relative) Or has anyone ever kidnapped someone close to your child?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
2.5 Has your child ever been attacked by a dog or other animal?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
3.1 Has your child ever seen, heard, or heard about people in your family physically fighting, hitting, slapping, kicking, or pushing each other. Or shooting with a gun or stabbing, or using any other kind of dangerous weapon?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure

PLEASE COMPLETE OTHER SIDE OF PAGE

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3.2 Has your child ever seen or heard people in your family threaten to seriously harm each other?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
3.3 Has your child ever known or seen that a family member was arrested, jailed, imprisoned, or taken away (like by police, soldiers, or other authorities)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
4.1 Has your child ever seen or heard people outside your family fighting, hitting, pushing, or attacking each other? Or seen or heard about violence such as beatings, shootings, or muggings that occurred in settings that are important to your child, such as school, your neighborhood, or the neighborhood of someone important to your child?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
4.2 Has your child ever been directly exposed to war, armed conflict, or terrorism?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
4.3 Has your child ever seen acts of war or terrorism on the television or radio?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
5.1 Has someone ever made your child see or do something sexual (like touching in a sexual way, exposing self or masturbating in front of the child, engaging in sexual intercourse)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
5.2 Has your child ever been present when someone was being forced to engage in any sort of sexual activity?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
6.1 Has your child ever repeatedly been told s/he was no good, yelled at in a scary way, or had someone threaten to leave or send him/her away?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
6.2 Has your child ever gone through a period when s/he lacked appropriate care (like not having enough to eat or drink, lacking shelter, being left alone when s/he was too young to care for herself/himself, or being left with a caregiver who was abusing drugs)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
7.1 Have there been other stressful things that have happened to your child?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure

Appendix D

Demographic Recording Form

Child Information:				
Name:				
Age:				
Gender: (Circle One)	Female	Male	Other	
Ethnicity: (Circle One)	White/Non-Hispanic	Hispanic/Latino	Black/ African American	
	American Indian/Alaskan Native	Asian/ Pacific Islander	Other	
Number of siblings:				
Diagnosis:				
Medication:				
Caregiver/Family Information:				
Caregiver Gender: (Circle One)	Female	Male	Other	
Family Background: (Circle One)				
Biological Parent	Foster Parent	Adoptive Parent	Guardian	Relative
Caregiver Marital Status (Circle One)				
Single	Divorced	Separated	Married	In relationship
Number of persons living in the home:				
Household Income Level: (Circle One)				
\$0-\$25,000	\$25,000-\$50,000	\$50,000-\$75,000	\$75,000-\$100,000	>\$100,000

Appendix E

Caregiver Involvement in Treatment Scale (CITS)

The purpose of the Caregiver Involvement in Treatment Scale (CITS) is to measure a caregiver's engagement in family therapy sessions. Please complete the CITS considering the caregiver's level of engagement in family therapy *over the past month*.

1. Caregiver is on time for therapy sessions:

Almost Always

Often

Sometimes

Almost Never

2. Caregiver uses verbal cues to indicate active engagement in therapy:

Almost always

Often

Sometimes

Almost Never

3. Caregiver gives nonverbal cues (e.g., head nodding, smiles) to indicate active engagement in therapy:

Almost always

Often

Sometimes

Almost Never

4. Caregiver asks questions during therapy sessions:

Almost always

Often

Sometimes

Almost Never

5. When asked, caregiver practices behavior management techniques *within* therapy sessions:

Almost always

Often

Sometimes

Almost Never

6. Based on observations in session, it appears that the caregiver practices behavior management techniques *outside of* therapy sessions:

Almost always

Often

Sometimes

Almost Never

7. Caregiver asks direct questions about child's progress:

Almost always

Often

Sometimes

Almost Never

8. Level of Caregiver Involvement in Treatment:

Not Involved at All				Somewhat Involved				Very Involved	
1	2	3	4	5	6	7	8	9	10

Appendix F

Timeline of Data Collection

	Week		
	One	Two	Three
Cycle One March 24-April 11	Omaha March 24-March 28	Lincoln March 31-April 4	Elkhorn April 7-April 11
Cycle Two May 26-June 13	Lincoln May 26-May 30	Elkhorn June 2-June 6	Omaha June 9-June 13
Cycle Three Aug 25-Sept 12	Elkhorn Aug 25-Aug 29	Omaha Sept 1-Sept 5	Lincoln Sept 8-Sept 12
Cycle Four Nov 17-Dec 5	Omaha Nov 17- Nov 21	Lincoln Nov 24-Nov 28	Elkhorn Dec 1- Dec 5
Booster Sessions	Elkhorn Dec 17	Lincoln Dec 18	Omaha Dec 22

Appendix G

Treatment Evaluation Inventory- Short Form (TEI-SF)

Please complete the items listed below by placing a checkmark on the line next to each question that best indicates how you feel about the treatment. Please read the items very carefully because a checkmark accidentally placed on one space rather than another may not represent the meaning you intended.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I find this treatment to be an acceptable way of dealing with the child's problem behavior.					
2. I would be willing to use this procedure if I had to change the child's problem behavior.					
3. I believe that it would be acceptable to use this treatment without children's consent.					
4. I like the procedures used in this treatment.					
5. I believe this treatment is likely to be effective.					
6. I believe the child will experience discomfort during the treatment.					
7. I believe this treatment is likely to result in permanent improvement.					
8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.					
9. Overall I have a positive reaction to this treatment.					