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## The Development and evaluation of a safety skill intervention for child victims of neglect

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THE DEVELOPMENT AND EVALUATION OF A SAFETY SKILL INTERVENTION  
FOR CHILD VICTIMS OF NEGLECT

by

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A dissertation submitted in partial fulfillment  
of the requirements for the

**Doctor of Philosophy Degree in Psychology**  
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**THE GRADUATE COLLEGE**

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**Heather H. Hill**

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## ABSTRACT

### **The Development and Evaluation of a Safety Skill Intervention for Child Victims of Neglect**

By

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Child neglect is the least studied, yet most frequently indicated, type of child maltreatment. Still, there are few assessment and treatment methods specifically designed for victims of child neglect. Unintentional injuries have long remained the leading cause of death for children in the United States after the first year of life, and research suggests the majority of these child fatalities are actually the result of child neglect. Homes of neglectful families are often inundated with safety hazards but child-focused home safety skill interventions have yet to be developed. Thus, the present study focused on the development and initial evaluation of a child-focused home safety skills training program for victims of child neglect. The child-training was incorporated into Family Behavior Therapy (FBT), an in-home parent-focused treatment program for child neglect and maternal substance abuse. The original development and initial evaluation of the training in uncontrolled case trials are reviewed. The current study involved two controlled multiple baseline evaluations for child participants. Results after training indicated improvements in children's skills relevant to ameliorating identified home hazards, and suggest the training is promising and worthy of future study.

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## TABLE OF CONTENTS

ABSTRACT .....	iii
ACKNOWLEDGEMENTS .....	iv
CHAPTER 1 INTRODUCTION .....	1
Relationship between Physical Neglect and Unintentional Injuries .....	1
Purpose of the Present Study .....	4
CHAPTER 2 LITERATURE REVIEW .....	5
Overview of Child Physical Neglect.....	5
Consequences of Child Physical Neglect .....	6
Characteristics of Victims of Neglect .....	10
Characteristics of Perpetrators and Families of Neglect.....	12
Parent-Focused Treatment Programs for Child Maltreatment.....	16
Parent-Focused Treatment Programs Specific to Child Neglect .....	27
Child-Focused Treatment Programs Relevant to Child Maltreatment .....	31
Child-Focused Treatment Programs Specific to Safety Skills.....	35
Child-Focused Safety Skill Training Incorporated within In-Home Parental Treatment Program for Physical Neglect and Substance Use .....	42
Treatment Development Process .....	48
Manual Development.....	49
Specific Aims and Hypotheses .....	53
CHAPTER 3 RESEARCH METHODS .....	54
Procedures.....	54
Study In/Exclusionary Criteria.....	54
Assessment Process and Measures .....	55
Description of Family Behavior Therapy Program and Various Contextual Factors Relevant to the Implementation of Treatment .....	58
Description of the Newly Developed FBT Child-Focused Home Safety Skill Training.....	60
Description of Adult-Focused FBT Interventions .....	62
Managing Attrition.....	65
Case Introduction .....	65
Presenting Problems .....	66
History .....	66
Study 1 .....	68
Study Design.....	68
Study 2 .....	69
Study Design.....	69
Behavioral Treatment Plan .....	70
CHAPTER 4 RESULTS .....	74
Pre-Treatment Assessment Results.....	74

Participatory Assessment .....	74
Evaluation of Study 1.....	75
Phase 1: Baseline/Non-Educational and Directive Activity .....	76
Phase 2: Electrical Outlet Safety Skill Training .....	78
Phase 3: Electrical Outlet and Heavy Object Safety Skill Training .....	78
Evaluation of Study 2.....	79
Phase 1: Baseline/Non-Educational and Directive Activity .....	79
Phase 2: Sharp Objects Safety Skill Training .....	79
Phase 3: Sharp Objects and Electrical Outlet Safety Skill Training.....	81
Comprehensive Adult-Focused FBT Interventions .....	81
Post-Treatment Assessment Results .....	81
Follow-up Assessments Results.....	82
Complicating Factors During Treatment .....	83
 CHAPTER 5 DISCUSSION.....	 87
Summary of Findings.....	87
Study Limitations and Future Directions.....	90
 REFERENCES .....	 103
 VITA.....	 131



## CHAPTER 1

### INTRODUCTION

Child neglect has consistently been the most frequently indicated form of child maltreatment (United States Department of Health and Human Services [USDHHS], 2009; Wang & Daro, 1998). In 2007 59% of the estimated 794,000 victims of maltreatment, and 41% of the estimated 1,760 child fatalities, were classified as resulting from neglect alone (USDHHS, 2009). These figures appear to be underestimates. In the latest version of the National Incidence Study of Child Abuse and Neglect (NIS-3), Sedlak and Broadhurst (1996) estimated that less than one third of child neglect cases are reported to Child Protective Services (CPS), and 50 to 60% of deaths resulting from child neglect are not recorded (Crume, DiGuseppi, Byers, Sirotnak, & Garrett, 2002; Herman-Giddens et al., 1999). Researchers have suggested that the majority of child fatalities recorded as unintentional injuries are actually the result of child neglect (Ewigman, Kivlahan, & Land, 1993; Landen, Bauer, & Kohn, 2003).

Unintentional injuries have long remained the leading cause of death for children in the United States after the first year of life (Borse et al., 2008; Schnitzer, 2006). From 2000 to 2006 an average of 12,175 children and adolescents died each year as a result of unintentional injuries (Borse et al., 2008). Excluding motor vehicle-related injuries, recent research demonstrates that the majority of unintentional injuries and deaths from these injuries occurred in the home environment (Danseco, Miller, & Spicer, 2000; Nagaraja et al., 2005; Phelan, Khoury, Kalkwarf, & Lanphear, 2005). From 1992 to 1999, approximately 2,100 children under the age of 15 years died each year as a result of unintentional injuries occurring in their homes (Runyon & Casteel, 2004).

## **Relationship between Physical Neglect and Unintentional Injuries**

Initial studies in “child neglect” and “unintentional injuries” were conducted in separate fields guided by dissimilar conceptualizations and methodologies (Liller, 2001). However, since Peterson and Brown (1994) outlined significant parallels in the antecedents of both forms of harm, and suggested a more unified approach in prevention and treatment development efforts, scientists have supported and expanded upon these areas of research (Azar & Weinzierl, 2005; Overpeck & McLoughlin, 1999).

Researchers have conducted studies comparing classification systems within child maltreatment, and although high rates of concordance were found for physical and sexual abuse, the lowest consensus rates were found in neglect (Bensley et al., 2004; Runyon et al., 2005). These findings most likely relate to other forms of maltreatment being characterized by overt behaviors or discrete events that cause children harm, while child neglect typically represents chronic omission of protective behaviors or conditions. Although specific definitions of child neglect may vary across states, the Keeping Children and Families Safe Act of 2003 (Public Law 108-36), provides minimum standards that all states must include in their regulation of child neglect. Along these lines, neglect is defined as a failure to act on the part of a caretaker that presents an imminent risk of harm or results in death or serious physical, emotional, or sexual harm or exploitation to a child (DePanfilis, 2006).

The most common categories of neglect include physical (inadequate household safety, supervision, nutrition, and clothing), emotional (failure to provide adequate affection and support), medical (lack of appropriate medical care), and educational (failure to provide age-appropriate academic materials or attendance; see Cowen, 1999;

Scannapieco & Connell-Carrick, 2002). Of the different types of child neglect, physical neglect is most reliable (Sedlak & Broadhurst, 1996). Regardless of intentionality, physical neglect is often indicated if a child sustains an injury as the result of a hazardous home environment (Watson-Percel, Lutzker, Greene, & McGimpsey, 1988) because caregivers are assumed to have failed to use available and known protective home safety resources (DePanfilis, 2006).

There is great consensus among researchers that evidenced-based treatments on child neglect are greatly lacking as compared with other forms of maltreatment (Chaffin & Friedrich, 2004; Wang & Daro, 1998; Zuravin, 1999). The few evidenced-based programs chiefly targeting neglect are primarily parent-focused (Dufour & Chamberland, 2004). However, parental behavior is less often targeted in unintentional injury research (Tremblay & Peterson, 1999). Most child-focused “safety treatments” have been evaluated in victims of abuse or children considered to be at-risk for future maltreatment, and none have specifically focused on teaching child victims of neglect home safety skills in their natural environment. There is a great need for child-focused treatments aimed at enhancing safety skills (Becker et al., 1995; Corcoran, 2000; DePanfilis, 2006; Thomlison, 2003; Wekerle & Wolfe, 1993) as well as the development and evaluation of child-focused treatments integrated into parental maltreatment programs (Carr, 2009; Liller & Sleet, 2004; Pennell & Crampton, 2011; Runyon et al., 2005). The development and evaluation of child-focused home safety skill interventions is particularly needed in child victims of neglect.

### **Purpose of the Present Study**

The proposed study will be focused on the development and evaluation of a child-focused home safety skills training program for victims of child physical neglect and specific to unintentional injuries. The results of a study aimed at developing a child-focused home safety skills training program will be reviewed, including its original development and initial evaluation in uncontrolled case trials. The child-focused safety program was developed to be incorporated into a Family Behavior Therapy (FBT). The three phases of this study included: (1) initial development of the intervention and assessment approach, (2) evaluation of the initial intervention approach in uncontrolled trials, (3) evaluation of the developed home safety skill training program in a controlled single case multiple baseline trial.

## CHAPTER 2

### LITERATURE REVIEW

#### **Overview of Child Physical Neglect**

A recent investigation found that subtypes of neglect are unique phenomenon, and discerning differences could be beneficial in treatment planning (Dubowitz, Pitts, & Black, 2004). Physical neglect generally involves the parent or caregiver failing to provide the child with adequate basic necessities in the home environment including safety devices, food, cleanliness, clothing, and supervision (USDHHS, 2009). Physical neglect has consistently been the most prevalent form of neglect accounting for up to 57% of neglect (Sedlak & Broadhurst, 1996), and affecting an estimated 7 of every 1000 children in the United States (American Humane, 2003). Due to severity the most commonly noted consequences of physical neglect are physical injury and death. Although physical injuries and death can occur in other environments, the most common location is in the child's home (DePanfilis, 2006).

Injuries and fatalities as a result of physical neglect can be chronic in nature (e.g., medical complications and deaths from malnutrition). However, the most imminent danger typically results from a combination of home safety hazards and inadequate supervision (DePanfilis, 2006). Although these factors typically present the most imminent risk of harm, they along with other factors of neglect are based on a continuum. Differentiating between unsubstantiated versus substantiated cases of physical neglect largely depend on the number of children in the home, the child's chronological and developmental age, the families socioeconomic status, and the severity, frequency, and chronicity of injury or hazardous home environment (DiLeonardi, 1993; Manly, Kim,

Rogosch, & Cicchetti, 2001). For example, physical neglect would likely be substantiated if a family with a single child under the age of 3 years sustained an injury as the result of household cleaning products being assessable. However, if a family with a single 12-year-old child experienced the same event, the case would likely be unfounded. On the other hand, substantiating physical neglect would be stronger if CPS initially investigated an incident of a 12-year-old being harmed by exposed toxins and found that a younger child or older child with developmental disabilities were also living in the home. Physical neglect would probably not be justified if a family in a low-income environment could not afford cabinet locks or were unable to get safety equipment from community resources, but still made appropriate efforts to reduce the likelihood of harm.

### **Consequences of Child Physical Neglect**

Children's physical environment assumes a significant role in determining both their physical and psychological well-being. Therefore, if their home is not safe they face devastating consequences. Chronic poor living conditions (American Professional Society on the Abuse of Children [APSAC], 2008) and child neglect appear to have more severe and long-term consequences than one incident of physical abuse (Becker et al., 1995; Berry, Charlson, & Dawson, 2003; USDHHS, 2009).

In a national report, Runyon and Casteel (2004) summarized unintentional home fatality and injury rates in children under the age of 15 years. From their extensive examination, it was found that from 1992 to 1999, an average of 2,097 children died each year as a result of home injury. For every one home injury death each year, there are nearly 1,500 nonfatal home injuries with an average of 3.4 million injuries being treated in the emergency hospital. More than half of these nonfatal injuries occur in children

between the ages of 1 to 9 years. Among the top leading causes of both fatal and nonfatal home injuries include physical harm caused by choking and/or suffocation, burns, falls or being struck by and/or against an object, poisoning, and being cut.

Complications from fires or burns are the leading cause of death for children, with 44% of these deaths occurring in children ages 1 to 4 years. Injuries and deaths from fires or burns can result from electrical outlets and wires lacking appropriate or properly installed covers, overloaded circuits, poor working or located appliances (e.g., ovens, space heaters, dryers), clutter (e.g., flammable materials, nonflammable materials blocking pathways), and flammable materials left unsupervised (e.g., matches, lighters, burning cigarettes). Complications caused by choking or suffocation are the second leading cause of home injury death for children, with the majority of these deaths occurring in children younger than 5 years. Deaths and injuries related to suffocation are typically caused by the ingestion of food or objects that block respiration systems. Most children who experience injuries or deaths as the result of suffocation are usually not being appropriately supervised (Feldman, 1980), and safety hazards in the environment increase the likelihood of harm. High rates in young children most likely relate to the ingestion of non-edible small objects and difficulties appropriately chewing or swallowing certain foods.

Unintentional poisonings are the 5<sup>th</sup> leading cause of death for children, and the 2<sup>nd</sup> leading cause of nonfatal injury for children under the age of 5 years. Most poisonings occur when children are not being adequately supervised (Patel, Groom, Prasad, & Kendrick, 2008). The most common products for child poisonings including cleaning supplies, prescription and over the counter medications, and beauty and personal care

products (APSAC, 2008; SAMHSA, 2006). The top three leading causes of nonfatal injuries are related to falls and being struck or cut. Common causes for these injuries include children falling from high locations, poorly secured heavy objects falling on children, and sharp objects resulting in cuts. Injuries as a result of these and other hazards have not declined in recent years (Runyon & Castel, 2004), and have been found to be prevalent in families who have been identified for physical neglect (Watson-Percel et al., 1988).

Physical neglect can result in both short-term (e.g., mild cuts, bruises, burns) and long-term consequences (e.g., head injuries, growth problems, deformities). In addition to severity and frequency, consequences vary according to child-based (e.g., temperament, coping skills, developmental stage) and environmentally-based characteristics, such as family income, social support, neighborhood characteristics (see Hecht & Hansen, 2001). Nevertheless, a history of neglect has been found to contribute to struggles in childhood, adolescence, and adulthood.

Victims of neglect have been found to exhibit both internalizing and externalizing problems. As young as 2 years of age, children of neglect exhibit more anger, aggression, frustration, non-compliance, and express less enthusiasm and contentment as compared to non-neglected children (Egeland & Erickson, 1999). By the time neglected children reach school age, they are at a significant risk for school failure and socio-emotional difficulties. As early as 5 to 10 years of age, neglected children demonstrate high rates of Attention-Deficit Hyperactivity Disorder (ADHD), Oppositional-Defiant Disorder (ODD), and Post-Traumatic Stress Disorder (PTSD) (Famularo, Kinscherff, & Fenton, 1992). As compared to matched maltreatment victims, child victims of neglect



consistently evidence poor academic performance (Allen & Oliver, 1982; Kurtz, Gaudin, Wodarski, & Howing, 1993), more suspensions, grade repetitions, and disciplinary referrals (Kendall-Tackett, & Eckenrode, 1996). Physical signs of neglect (e.g., poor hygiene, torn clothing, skin problems) can lower a child's self-esteem and make social interactions difficult. Indeed, physically neglected children often have conflicted and fewer reciprocated relationships (Bolger, Patterson, & Kupersmidt, 1998), and many victims report feeling insecure, out of control, helpless, and very stressed (Erickson & Egeland, 2002).

Maltreated children exhibit many problem behaviors in adolescence, including running away from home (Kaufman & Widom, 1999), self-injurious behavior (Brown, Cohen, Johnson, & Smailes, 1998), teenage pregnancy (Herrenkohl, Herrenkohl, Egolf, & Russo, 1998), delinquency (Maxfield & Widom, 1996), and dating violence (Wolfe, Scott, Wekerle, & Pittman, 2001). In adulthood, being the victim of maltreatment has been associated with higher rates of Substance Abuse (Kelley, 2002), Major Depressive Disorder (Brown et al., 1998), suicidality (Brodsky & Stanley, 2008), violent criminal behavior (Maxfield & Widom 1996), and personality disorders (Horowitz, Widom, McLaughlin, & White, 2001). Perhaps the most unfortunate consequence is the strong intergenerational transmission of child maltreatment (Crouch, Milner, & Thomsen, 2001). Neglected children stand a greater chance of becoming neglectful parents than do grown children from non-neglectful families (Golden, 2000).

Consequences of child maltreatment and associated problems affect more than just the victim and their family. Financial costs to society are significant and appear to be increasing. Indeed, estimates of annual financial spending related to child maltreatment

were approximately \$94 billion in 2001 (Fromm, 2001), and rose to \$103.8 billion in 2007 (Wang & Holton, 2007). Between 1997 and 2001, medical costs associated with unintentional home injuries cost society at least \$222 billion, and poisonings alone cost \$22 billion (Runyon & Casteel, 2004).

### **Characteristics of Victims of Neglect**

Certain characteristics place children at an increased risk for being a victim of neglect. The most consistent risk factor is age, with younger children being the most at-risk. Indeed, an inverse relationship exists between the incidence of physical neglect and a child's age (Marovich & Wilson, 1999; Nagaraja et al., 2005). Higher physical neglect rates among young children most likely relate to amount of time spent in the home and their inability to recognize and defend themselves from hazards. There does not appear to be any indication for gender differences in neglect rates (Connell-Carrick, 2003).

Babies born exposed to drugs or alcohol in utero may have physiological problems, developmental problems, or both that place them at an increased risk to be victims of child neglect. Approximately 375,000 of the children born each year have been exposed to parental substance abuse (Chasnoff, 1988). Drug exposed infants have been found to be more likely to be in the custody of child protective services, and drug using mothers have been found to neglect their children at higher rates than non-drug using mothers (Kelley, 1992). Other factors that put a child at risk for being a victim of neglect include being born prematurely, having a low birth weight, being viewed as less attractive by the parents, having a difficult temperament, and having a physical or mental disability because these characteristics are believed to make the parenting role less rewarding and

more stressful which increases parental irritability (Sidebotham & Heron, 2006; Swenson & Chaffin, 2006; Wolfe & McEachran, 1997).

In general, maltreated children tend to lack social, problem solving, and conflict resolution skills (Fantuzzo, Weiss, Atkins, Meyers, & Noone, 1998). Neglected children in particular avoid interactions with peers (Hoffman-Plotkin & Twentyman, 1984), and use avoidance and helplessness strategies when stressed (Crittenden, 1985b). Thus, when confronted with problems, victims may lack the skills or guidance to handle such events.

Physical and emotional neglect are significantly correlated (Dubowitz et al., 2004), with most children of physical simultaneously experiencing emotional neglect (Erickson & Egeland, 2002). It is widely accepted that lack of positive reinforcement greatly contributes to behavioral problems in children. Thus, as expected, neglected children are more likely to exhibit externalizing disorders than non-neglected children (Lounds, Borkowski, & Whitman, 2006).

Although it is difficult to differentiate between genetic and environmental consequences, numerous studies have revealed that children of neglect have low cognitive functioning. In a review of studies on maltreated children's language abilities, Katz (1992) found neglect victims to exhibit the most severe deficits in language ability. Indeed, when abused, neglected, and both abused and neglected children were compared in terms of language abilities, neglect alone was the most strongly associated with receptive, expressive, and overall language delay (Culp et al., 1991b). Specifically, the language skills of neglected children were 6 to 9 months delayed as compared to 4 to 8 months, and 0 to 2 months for the abused and neglected, and abused children, respectively (Culp et al., 1991b). With particular relevance to physical neglect, children

from hazardous and chaotic homes have lower receptive scores as compared to children from safer and more structured homes (Harrington, Dubowitz, Black, & Binder, 1995). Even when controlling for socioeconomic status, the physical condition of the home has been found to predict cognitive competence and performance in maltreated children (Vondra, Barnett, & Cicchetti, 1990).

In addition to highlighting the need for safety treatments in the homes of neglected children, these findings provide insight into considerations for the development and evaluation of effective treatments. Along with parental education and intervention, children identified as being most at-risk should be taught to recognize and defend themselves from neglect and home hazards (see Corcoran, 2000; DePanfilis, 2006; Thomlison, 2003). While developmental level should be considered in all child-focused treatments, more individualized accommodations may need to be made for victims of neglect. For instance, assessment and training methods may need to incorporate aids for both expressive and receptive abilities as these children may demonstrate delays in one or both areas (see Culp et al., 1991b; Harrington et al., 1995). Of course, skill deficits (e.g., problem-solving, social), inadequate coping strategies (e.g., helplessness, avoidance), and behavioral problems should be targeted utilizing empirically-validated interventions. Special consideration should also be given to duration and the engaging nature of treatment to avoid fatigue and attention difficulties.

### **Characteristics of Perpetrators and Families of Neglect**

Understanding common characteristics of perpetrators and families of neglect are essential as effective child-focused treatments typically require parental and family involvement. Females have the highest perpetrating and recidivism rates for child

neglect (Way, Chung, Jonson-Reid, & Drake, 2001). In 2006, 87 % of victims were neglected by a parent, with 40% of children being maltreated by their mother alone (USDHHS, 2009). Young mothers are more likely to physically neglect their children as compared to older mothers (Jaudes, Edemn, Ekwo, & Van Voorhis, 1995; Lounds et al., 2006). Single-parent households perpetrate neglect most frequently (Dufour, Lavergne, Larrivee, & Trocme, 2008). Indeed, children of single parents are at a greater risk of being harmed (87%) and being seriously injured or dying (80%) as a result of physical neglect than children living with both parents (Sedlak & Broadhurst, 1996). Children from single- or step-family homes are more likely to suffer from unintentional home injuries in their first 5 years of life (Wadsworth, Burnell, Taylor, & Butler, 1983). Parents who are caring for multiple children have a higher likelihood of perpetrating neglect (Zuravin, 1988), with children from larger families being physically neglected at nearly 3 times the rate of those from single-child families (Sedlak & Broadhurst, 1996).

In two-parent households, parents who neglect their children report high levels of marital conflict (Kurtz et al., 1993), and domestic violence occurring in the first half of a newborns life doubles their risk for being neglected by age 5 years (McGuigan & Pratt, 2001). Few significant parent-child interactions are found in neglectful families and positive communication is very limited (Gaudin, Polansky, Kilpatrick, & Shilton, 1996). Infrequent use of positive parenting behaviors has been found to predict physical injury in young children (Schwebel, Brezausek, Ramey, & Ramey, 2004), and individuals from families experiencing high amounts of stress and conflict are at a greater risk of suffering from unintentional injuries (Morrongiello, MacIsaac, & Klemencic, 2007). Stress levels of neglecting mothers are extremely elevated as compared to the general population, and

as compared to non-neglectful mothers, anxieties regarding parental roles are higher (Ethier, Lacharite, & Couture, 1995). Levels of stress are exacerbated by perpetrators of neglect when social support is limited (Polansky, Ammons, & Gaudin, 1985a).

Environmental influences can exacerbate stress. As compared to parents of higher socioeconomic status levels, low-income parents experience more parental stress (Gephart, 1997). Neglect is more strongly associated with poverty and low-income than any other form of child maltreatment (Sedlak & Broadhurst, 1996), particularly physical neglect (Jones & McCurdy, 1992). The strongest predictor of unintentional injuries is poverty (Durkin, Davidson, Kuhn, O'Conner, & Barlow, 1994), and children from low-income environments are at a greater risk of being injured than children from higher income levels (DiGuseppi & Roberts, 2000). For example, a family may not have the financial resources to obtain adequate basic necessities (e.g., food, clothing) and as compared to these needs, home safety equipment may be seen as a lower priority.

Similar to victims of neglect, neglectful parents evidence various skills deficits including problem-solving, social, and stress management skills (Burke, Chandy, Dannerbeck, & Watt, 1998; Corcoran, 2000). Lack of skills coupled with faulty interpretations of children's physical abilities can greatly affect parental motivation to employ home safety preventative measures. For instance, despite the fact that home safety devices have been shown to decrease a child's risk of being injured, many parents continue to interpret home injuries as beyond their control (Eichelberger, Gotschall, Feely, Hardstad, & Bowman, 1990). These misinterpretations can contribute to reduced effort (Liller & Sleet, 2004; Peterson & Brown, 1994) and knowledge about appropriate implementation of safety prevention devices (Morrongiello, 1998). Despite being

provided with instructions and free safety devices, controlled studies indicate that highly motivated parents demonstrate difficulties employing active measures of safety devices in their homes (see Dershewitz, 1979; Dershewitz & Williamson, 1977; Fergusson, Horwood, Beautrais, & Shannon, 1982). Low motivation is a widely accepted characteristic of neglectful perpetrators (Lutzker, Tymchuk, & Bigelow, 2001), and perpetrators reported for physical neglect in particular show less motivation (Coohey, 1998). Furthermore, as compared to carefully matched controls, neglectful parents have higher levels of unrealistic expectations regarding their children's safety abilities (Azar, Robinson, Heikinans, & Twentyman, 1984). As compared to non-neglectful mothers, neglectful mothers demonstrate greater difficulty recognizing a child's emotional needs (Hildyard & Wolfe, 2007), and are more likely to misinterpret their children's behaviors as having negative intentions and being oppositional (Dore & Lee, 1999). Thus, it is important to increase parental motivation for making the child's environment safe by clarifying appropriate child expectations, stressing the importance of home safety, and as much as possible, providing and installing home safety equipment with the family.

Co-morbid disorders can also affect a perpetrators compliance with treatment. High rates of depression, substance use, and antisocial behaviors are found in adults who report neglecting their children (Egami, Ford, Greenfield, & Crum, 1996). According to Reid, Macchetto, and Foster (1999), 7 out of 10 cases of child abuse and neglect are exacerbated by parental substance use, with children from substance abusing parents being 4 times more likely to be neglected than children without. These and other reports have influenced state governments to work towards specifying an additional subtype of neglect that is associated with parental substance use (DePanfilis, 2006).

Perpetrators of neglect evidence many characteristics and associated problems that can exacerbate a child's risk of being physically neglected. For example, a parent may possess the appropriate skills to function effectively as a parent, but stress, misinterpretations, or motivation may suppress the demonstration of these skills. On the other hand, a parent may lack the necessary problem solving skills and distracter variables such as co-morbid psychiatric disorders may exacerbate the skill deficit. These factors need to be assessed, considered, and addressed when developing and conducting treatments with perpetrators of neglect and their children. Stress reduction can include providing support and resources for financial and environmental factors (e.g., food-assistance programs, home safety equipment), improving positive family communication, and establishing social support networks. Social, problem-solving, and communication skills should be taught to family members to maintain reduced stress levels. Appropriate expectations regarding children's abilities along with child behavior management skills should be provided.

### **Parent-Focused Treatment Programs for Child Maltreatment**

Research efforts addressing treatment programming for child maltreatment are primarily parent-focused, and have been conducted with mixed populations of abuse and neglect. Researchers have proposed few interventions that are unique to child neglect as compared to other forms of child maltreatment (for reviews see Becker et al., 1995, Corcoran, 2000; Dufour & Chamberland, 2004; Thomlison, 2003). Prevention efforts are chiefly conducted in populations that are considered to be at-risk, and reunification efforts involve working with families whose children have already been removed from their care. There are relatively more treatment outcome studies with families at-risk for



future maltreatment than families already referred to CPS. The majority of evaluations with at-risk families involve perinatal home-visiting programs among new parents (e.g., Healthy Start, Healthy Families, Nurse Family Partnership program). Some evaluations of programs such as these have found reductions in childhood injury (Duggan et al., 1999; Kitzman et al., 1997; Olds et al., 1998) and others have not (Duggan et al., 2004, 2007; St.Pierre & Layzer, 1999; Wagner & Clayton, 1999). Authors have noted that reduced maltreatment rates have resulted from less stringent program evaluation studies with more rigorous studies failing to find significant results in either self-reported or official maltreatment data (see Chaffin & Friedrich, 2004; Leventhal, 2005). Eckenrode et al. (2000) indicated that reduction in child maltreatment appears especially weak when substance abuse is present. In a sample of perpetrators with existing CPS cases, MacMillian et al. (2005) found no differences between nurse home-visiting and community programs in maltreatment, recidivism, or childhood injury rates.

Family Connections (DePanfilis & Dubowitz, 2005) is designed to enhance protective factors and reduce risk factors in families that are at-risk for child neglect. A sample of 154 families (473 children) primarily identified to be at-risk for physical neglect received either 3 or 9 months of the in-home intervention. Core components of this program include emergency assistance, individual and family counseling, and the facilitation of multifamily supportive recreational activities. In both the 3- and 9-month program, the sample demonstrated improvements in self-reported parental depression, stress, social support, attitudes, and competence. Both treatments resulted in modest improvements in physical care of the children (i.e., household furniture, overcrowding, sanitation improved), and improved parental reports of children's behaviors, with 9 months of

treatment being superior to the shorter intervention. Although the study offers several insights for further study, limitations include lack of some gains at the 6-month follow-up (e.g., parental stress, social support, competence; child behaviors), and no comparison condition. In populations identified to be at-risk for physical neglect, it appears that in-home treatments with longer than 3 month durations can demonstrate promise in measures related to home safety, children's behavior, and various parental risk-factors, particularly when all family members are involved in both therapeutic and positive leisure activities.

Programs have also been developed for populations in which substantiated abuse and/or neglect has resulted in foster care placement. The Early Intervention Foster Care Program (EIFC; Fisher, Burraston, & Pears, 2005; Fisher & Chamberlain, 2000; Fisher, Ellis, & Chamberlain, 1999) provides treatment to maltreated children of both pre- and school age. Intensive services are provided directly to children, biological family members, and foster parents. Foster parents are trained to implement behavioral management techniques with on-going support from the child's treatment team (e.g., weekly in-home visits, daily phone contact, clinical supervision). Biological family members learn similar techniques in both clinic and in-home settings. Reunification occurs when children and birthparents demonstrate appropriate compliance, and upon reunification support services are provided the family for up to 3 months. As compared to community control foster programs, EIFC has demonstrated significantly fewer failed permanent placements, higher levels of effective behavioral management techniques of foster parents, and improvements child behaviors. Results suggest that maltreated children and motivated foster parents can benefit from behavior management

implementation. Programs such as these would be strengthened by demonstrating improvements in biological family member measures. It seems that child-focused safety skills training should utilize behavioral management techniques to reinforce desired behaviors and skills, and ignore behaviors inconsistent with skills training. Multiple individuals enforcing consistent in-home behavior management plans is expected to result in gains in skill-building for both perpetrators and their children.

Parent-Child Education Program for Physically Abusive Parents (Wolfe, 1991) is designed to establish and maintain positive parent-child interactions, parental sensitivity to children's social and emotional needs, child management strategies, reasonable expectations, and community assistance. Controlled investigations with parents with a history of perpetrating physical abuse against their children have resulted in continued reductions in harsh disciplinary strategies, negative child parent interactions, child behavioral problems, and physical abuse rates (Wolfe, Edwards, Manion, & Koverola, 1988; Wolfe & Hirsch, 2003; Wolfe, Sandler, & Kaufman, 1981). To date this program has not been examined in child neglect. However, the results suggest that educating perpetrators of abuse about appropriate expectations, interactions, and behavior management strategies may lead to improvements in both child and parent outcomes.

Parent-Child Interaction Therapy (PCIT) is designed to reduce child behavior problems and maladaptive patterns of interactions in parent-child relationships (Eyberg & Matarazzo, 1980). PCIT involves both parent and child, and together the two phases of treatment require approximately 20 sessions. The first phase is known as child-directed interaction and involves program therapists observing and coaching parents through a "bug-in-the-ear" device. This device allows parents to immediately receive therapist

prompting and feedback, and practice appropriate communication and behavior management skills with the child. Parent-directed interaction, the second phase, focuses on managing children's noncompliance through instructing the parents to use clear commands and appropriate consequences (e.g., time-out). Many studies have demonstrated the efficacy of PCIT in reducing child behavior problems in both treated children and untreated siblings, with improvements maintaining for up to 6 years post-intervention (Brestan & Eyberg, 1998; Eyberg et al., 2001; Hood & Eyberg, 2003). With physically abusive parents, PCIT has been shown to reduce abuse reports and negative-child interactions (Chaffin et al., 2004). Timmer, Urquiza, Zebell, and McGrath (2005) were the first to apply PCIT to biological parent-child dyads with a history of abuse, neglect, and child behavioral problems. Initially 307 families qualified for this study with results being presented on 91 families with and 45 families without maltreatment history who completed PCIT and one assessment of child and parent functioning. All families who completed PCIT reported fewer psychological symptoms compared to families who did not complete. Families with a maltreatment history who finished the program reported fewer child behavioral problems as compared to those who did not complete treatment. All families demonstrated strong improvements from pre- to post-treatment on measures of child behavior problems and parenting stress. Problems related to attrition, lack of random assignment and follow-up measures, and differences in child behavior and parent psychological symptom severity limit strong recommendations concerning PCIT for use in neglectful families who evidence more severe problems. However, efficacy of PCIT in related populations suggests that when teaching child management strategies it is more effective to actively and immediately coach parents in these skills as

opposed to providing didactic training. Thus, in-vivo modeling and coaching strategies may be important to address when attempting to initiate children's cooperation and potential non-compliance within safety skills training.

The Incredible Years (IY; Webster-Stratton, 1984) group-based parenting program also utilizes behavioral approaches to address problems associated with maltreating families. Several outcome and related studies have demonstrated the efficacy of this program in high-risk populations including children with conduct disorder and achievement difficulties as well as families with low-income, minimal support, poor coping skills, and marital discord (see Gross et al., 2003; Hartman, Stage, & Webster-Stratton, 2003; Webster-Stratton & Hammond, 1990; Webster-Stratton, 1990, 1998; Webster-Stratton, & Taylor, 2001). Two studies of the Incredible Years program were found in child maltreatment populations (Hughes & Gottlieb, 2004; Linares, Montalto, Li, & Oza, 2006).

In the first study, Hughes and Gottlieb (2004) randomly assigned 26 maltreating families to eight 2-hour weekly sessions of the experimental program or a 4-month wait list control. Although all families had an open CPS case, the authors did not indicate if neglect was a component of the maltreatment report. Along with instruction from a trained facilitator, parents in the experimental condition received training in small groups through a standardized video-tape program. Using a strength-based model, the program directly addressed abuse and required parents to practice child management skills through role-plays. Objective assessments were conducted through video-taped performance of parent-child interactions during two prescribed 10-minute segments. Parents participating in The Incredible Years program demonstrated higher levels of parent-child interaction

levels as compared to controls. However, results from various self-report measures yielded no differences between the groups. Although results from objective assessments are encouraging, limitations related to social desirability and the “staged” nature of the assessment should be more fully addressed. The small sample, short treatment duration, and lack of opportunities for parents to practice skills with their children may have contributed to low efficacy results. Results from this study suggest that parents should be provided opportunities to practice behavioral management techniques directly with their children. Along with therapist coaching and feedback, opportunities for both children and parents to practice newly learned skills should be provided through role-plays and in-vivo instruction.

Linares, Montalto, Li, and Oza (2006) evaluated the use of the Incredible Years (IY) program with foster parents that were paired with the biological parents of children who were mandated to treatment due to their children being removed as a result of child maltreatment. Children in long-term (i.e., greater than 24 months) and kinship foster care placements were excluded from the study. The sample included 128 biological and foster parents that were randomly assigned in pairs to IY or a treatment as usual condition. Data from various self-report measures (i.e., foster- and biological-parents) and collateral reports of child behavioral problems was collected during pre- and post-treatment, and a 3-month follow-up. Two objective measures, Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984) and the Social Skills Rating System (Gresham & Elliot, 1990), were administered to the foster parents. Outcome data was not provided for either of the objective measures. The rate of treatment completion for IY parenting pairs was 16%, and completion rates for the control condition were not

reported. When compared to the treatment as usual condition during the post-treatment and 3-month follow-up, the parenting pairs receiving IY demonstrated significantly greater improvements in reports of positive parenting strategies. Relative to the control condition, the IY parenting pairs also reported significantly higher levels of collaborative co-parenting at post-treatment and clear expectations at the 3-month follow-up. Limitations of this study include high attrition rates. Overall, the IY program has accumulated research support on a variety of outcome measures associated with maltreating families, demonstrated promise in families with a history of maltreatment, and suggested the importance of behavioral parent-focused treatments in high-risk populations.

Multi-Systemic Therapy (MST) has amassed support when treating families whose youths evidence severe problems including substance use, violence, and emotional disturbances (see Henggeler et al., 1991; Henggeler, Clingempeel, Brondino, & Pickrel, 2002). Support for MST is strong in the aforementioned areas, and recent advancements have been made in applying MST for use in families of maltreatment (Brunk, Henggeler, & Whelan, 1987; Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, 2010).

Brunk, Henggeler, and Whelan (1987) randomly assigned 33 families with a history of maltreatment to either MST or a parent training group. Both treatment groups received eight 90-minute sessions, and roughly 50% of participants in both groups were from neglectful families. MST provides in home family-based treatment targeting existing and individualized risk-factors for youth delinquency and family problems with parenting and family practices being viewed as central in resolving youth problems. Thus, all family members receive comprehensive educational and skill-building training in the areas of

child management, parent-child interaction, communication, and case management. Relative to baseline measures, post-treatment results revealed decreases in stress and psychiatric symptoms in both groups. As compared to each other, MST demonstrated superiority in measures of parent-child interactions, while parent-training resulted in greater reductions in social problems. The low number of subjects and lack of objective and treatment fidelity measures, limit conclusions about efficacious aspects of this version of the MST program.

Swenson et al. (2010) recently investigated the effectiveness of an adaptation of MST for child abuse and neglect (MST-CAN) in a sample of 86 youth and families involved in the child welfare system due to physical abuse. The youth were between the ages of 10 and 17 years and were randomly assigned to MST-CAN or Enhanced Outpatient Treatment (EOT). All families received up to 12 months of treatment and specific engagement strategies from clinicians employed at a community mental health center. If deemed necessary, all families received psychiatric care. In addition to services provided by each treatment condition, all parents participated in a group-based parent-training program (Systematic Training for Effective Parenting of Teens, STEP-TEEN; see Dinkmeyer, McKay, McKay, & Dinkmeyer, 1998). The MST-CAN adaptation (see Swenson, Penman, Henggeler, & Rowland, 2010) included the core components of standard MST (see Henggeler et al., 2009) as well as several adaptations. The adaptations included increasing treatment duration and the MST supervisor's workload (i.e., part-time to full-time) as well as employing a MST-trained psychiatrist. Data was collected from CPS records and a variety of youth and parent self-report measures during baseline (i.e., 0- and 4-months), one intermediate time point (i.e., 2-months), and two follow-up



points (i.e., 10- and 16 months). Across the five assessments MST-CAN was significantly more effective than EOT in reducing youth mental health symptoms, parent psychiatric distress, parenting behaviors associated with maltreatment, youth out-of-home placements, and changes in youth placement. MST-CAN was also significantly more effective at improving natural social support for parents, and effect sizes were in the medium to large range for most outcomes examined. There were no between group differences in reabuse rates, and the research retention rate was 97% throughout the 16 months. For families involved in the child welfare system due to physical abuse, MST-CAN appears to be a promising program that can be effectively transported and implemented in community treatment settings. It appears that comprehensive in-home treatments targeting risk factors with multiple family members, employing engagement strategies, and involving psychiatric care and participation in supplemental parenting groups might be helpful in child neglect.

Family treatment has demonstrated promising results when conducted in group settings. In groups comprised of six to eight families, Multi-Family Group Therapy (MFGT; Meezen & O'Keefe, 1998a, 1998b) may be utilized to target family interaction patterns, social support, communication, and children's behavior, social competence, and peer relationships. In a controlled evaluation, 81 families with existing CPS cases of maltreatment were randomly assigned to receive MFGT or traditional family therapy. Over the course of 8 months all families met for 2.5 hours each week and received cognitive-behavioral training and case management services. Family members participating in MFGT spent the majority of treatment together with some time being allocated for individual services. At post-treatment assessment, both groups reported

increases in social support with families receiving MFGT reporting more improvements relative to the traditional treatment. Measures of child abuse potential revealed significant differences between the groups with significant reductions from clinical to below clinical levels for parents assigned to MFGT. Following treatment, significant differences favoring MFGT were also found on self-reported measures of abuse potential, stress, mood, family problems and structure, attitudes and knowledge of child development, and parent-child interactions. Children receiving MFGT were rated as more assertive and socially competent by their parents, while parents in the comparison condition reported less child behavior problems. Results from this study suggest that incorporating family, group, and individual treatments can result in positive outcomes specific to abuse, parental, family, and child problems. While replicating MFGT child-focused treatments is complicated by vague descriptions, it generally appears that child-focused treatments can be beneficial in the context of family therapy.

Overall results from the aforementioned studies suggest that many parent- and family-based programs have been successful in treating problems associated with both abuse and neglect. Treatments appear to be most effective when family members are provided comprehensive treatment services, including opportunities for active behavioral rehearsal of newly learned skills, strength-based strategies directly addressing abuse, implementation of treatment engagement and child management strategies, education relevant to appropriate expectations and risk-factors, psychiatric care, and longer treatment durations.

## **Parent-Focused Treatment Programs Specific to Child Physical Neglect**

There are relatively few research investigations conducted in child neglect, and even fewer programs target neglect and home safety simultaneously. Parent-focused treatments discussed in the following section are specific to physical neglect.

One of the first studies conducted with perpetrators of neglect incorporated a multiple baseline across subjects design intended to improve the care-taking abilities of 3 child-neglecting mothers referred from CPS (Dawson, De Armas, McGrath, & Kelly, 1986). Training in problem-solving skills resulted in increased child caretaking abilities that generalized to novel situations. Skill acquisition appeared to maintain, as there was no evidence of continued neglect throughout the 15-month follow-up period. In addition to teaching problem-solving abilities, Gaudin, Wodarski, Arkinson, and Avery (1990) proposed establishing a strong social network to assist neglectful perpetrators in more effectively meeting their own and their children's needs. Gaudin et al. (1990) developed and evaluated The Social Network Intervention Project (SNIP) under this model. The controlled investigation randomly assigned 34 families founded for neglect to receive services from SNIP or community agencies. For up to 12 months, parents and children receiving SNIP services participated in separate groups that primarily provided psychoeducation. Parent aids also visited familial homes to teach social, problem-solving, and communication skill building exercises through typical behavioral techniques. Following treatment completion, SNIP parents and their CPS caseworkers reported improvements in parenting abilities and home environments. Over 80% of families who received 9 months of SNIP improved from being classified as severely neglectful or neglectful to marginally adequate parenting abilities, and close to 60% of CPS cases were

closed because of improved parenting. High attrition and lack of follow-up measures make generalization and maintenance conclusions difficult. However, results from this study suggest that families reported for neglect can learn more appropriate parenting strategies including those associated specifically with physical neglect. Thus, in-home treatments targeting families founded for neglect should target specific parent and child skills training (e.g., problem-solving, social, communication) through behavioral approaches.

A series of studies conducted by Lutzker and colleagues have demonstrated the efficacy of a comprehensive home based program specifically addressing home cleanliness and safety in child neglecting populations. Lutzker, Frame, and Rice's (1982) ecobehavioral treatment approach proposed that objective and behavioral observations performed entirely in a family's natural environment could lead to generalizations across settings, behaviors, and time. Under this model, Lutzker, Campbell, and Watson-Perczel (1984) utilized behavioral techniques (e.g., contingency management) and provided assistance in the areas of nutrition, social support, and stress reduction in a family founded for physical neglect. Following treatment completion, objective measures demonstrated significant improvements in the personal hygiene of the 4 children living in the home. Additionally, a multiple baseline across children demonstrated the effectiveness of a child-focused tooth-brushing program.

Assessing and remedying common home hazards in families with maltreatment histories was addressed in the development and evaluation of an objective home safety measure known as the Home Accident Prevention Inventory-Revised (HAPI-R; Tertinger, Greene, & Lutzker, 1984, 1988). The HAPI-R was used to both assess and

train parents in the identification and amelioration of common home hazards (e.g., poisons, fire and electrical, small objects, heavy objects, firearms). Using hazards identified by the HAPI and a multiple-baseline design, decreases in specific home hazards were found and maintained for an average of 7 months in families substantiated for both abuse and neglect (Teringer et al., 1984). Metchikian, Mink, Bigelow, Lutzker, and Doctor's (1999) evaluated the effectiveness of home safety in 3 mothers. Two of the mothers were founded for physical neglect with one of the incidents resulting in an unintentional child injury, and the third mother was founded for neglect related to substance use. A multiple baseline design revealed that when home safety training was conducted in rooms with the most hazards and used in conjunction with the installation of provided safety equipment, decreases in overall home hazards occurred (e.g., generalized to other rooms) with effects maintaining from 4 to 10 months following treatment. Although found in small sample sizes, results from these diverse groups of families referred for physical neglect suggest that when an objective assessment and treatment tool is used improvements in hygiene for children and decreases in home hazards can occur, generalize, and maintain.

Lutzker and colleagues have conducted numerous evaluations on the comprehensive Project 12 Ways program (Lutzker & Rice, 1984; Wesch & Lutzker, 1991), and have subsequently standardized three of the most effective components (i.e., home-safety, child health care, and parent-child interaction) to form Project Safe Care (Gershater-Molko, Lutzker, & Wesch, 2002). In the evaluation study (Gershater-Molko, Lutzker, & Wesch, 2003), families at-risk or founded for child maltreatment were assigned to receive either community or Project Safe Care services. Participants assigned to Project

Safe Care exhibited significantly high rates of attrition. Of the 205 families that consented to treatment, 49 participated in some treatment and 41 completed the treatment program. Relative to the comparison group, parents who completed Project Safe Care demonstrated significant improvements in home safety, parenting skills, and rates of abuse and neglect through a 24-month follow-up period. Although the home safety component of Lutzker's programs appears to be especially efficacious in neglecting families, Project Safe Care is not recommended for the treatment of concurrent substance abuse and child neglect. Thus, development and evaluation of child-focused treatments in families referred for both neglect and substance use need to occur in programs with support in both areas.

Numerous complicating factors have probably contributed to the relatively few treatments specifically designed and evaluated in neglectful populations. Difficulties in treating this population include high attrition rates and a great deal of instability in the family environment (i.e., family violence, involvement in the justice system, lack of job stability, lack of social support, mental health issues, poverty). Thus, results from treatment studies in child neglect and abuse have generally led to modest short-term improvements.

The relative effects of the aforementioned treatments on attrition rates are difficult to assess because they vary due to multiple factors, such as the severity of the problem under study, treatment session frequency, type of diagnosis, and duration of treatment. Another factor that can influence attrition is motivation and those who are not motivated for treatment, such as participant's who may be court ordered to receive treatment, tend to have higher attrition rates (Gershater-Molko et al., 2003), perhaps because these are

often the most severe cases. Attrition rates in studies utilizing the ecobehavioral treatment approach range from 45% to 77% (e.g., Corcoran, 2000; Donohue & Van Hasselt, 1999; Gershater-Molko et al., 2003; Hansen, Warner-Rogers, & Hecht, 1998). Attrition rates for substance abuse treatment tend to be lower, ranging from 10% to 40% (e.g., Azrin, et al., 1994, 2001). While the difficulties of treating child neglect have been well documented, the literature also notes the most promising treatment approaches. For example, comprehensive in-home programs utilizing intensive behavioral techniques with all family members demonstrate the most success in this population. Relevant to home safety it appears that objective measures that both assess and train family members to reduce home hazards and improve sanitation along with providing and installing home safety devices is particularly successful. Programs addressing physical neglect in substance using populations should utilize treatments that have demonstrated benefits in both areas.

### **Child-Focused Treatment Programs Relevant to Child Maltreatment**

Considering the few parent-focused treatments developed and evaluated in neglect populations, even less child-focused treatments exist, and none have specifically targeted safety skills in this population. Although some the aforementioned comprehensive family-based treatments mentioned utilizing child-focused interventions specific techniques were rarely provided. Thus, the majority of the review of child-focused treatments will describe programs that have been conducted in victims of child neglect who have been identified to evidence more than one type of child maltreatment (e.g., sexual, physical), children in the general population, and children with disabilities.

Structured play therapies have shown promise in victims who have evidenced combined types of child maltreatment in school, day care, and foster care settings. Resilient Peer Training (RPT) has been developed through a series of studies by Fantuzzo and colleagues (Fantuzzo, Manz, Atkins, & Meyers, 2005; Fantuzzo, Stovall, Schachtel, Goins, & Hall, 1987; Fantuzzo, Sutton-Smith, Atkins, & Meyers, 1996), and is designed to increase children's social interactive skills by pairing socially withdrawn abused and/or neglected children with resilient peers. Under the supervision of a trained parent helper, play training involves 15 sessions of interactive or imaginative play conducted between pairs or groups of children in either simulated or actual classroom environments. The social behaviors of the withdrawn children are observed and recorded during play-training sessions and then during "free time," in the natural classroom setting. Fantuzzo et al. (1987) trained 2 maltreated preschool children with high levels of prosocial behavior to implement RPT in simulated classrooms with 4 socially withdrawn peers. Results indicated that RPT resulted in improved social behaviors that generalized to the classroom setting.

Similar outcomes have been demonstrated in randomized controlled trials conducted with larger populations of low-income and ethnically diverse Head Start preschoolers (Fantuzzo et al., 1996; Fantuzzo et al., 2005). In these studies, play training is conducted in the natural classroom with other Head Start children, staff, and family members serving as the facilitators of RPT. Children are randomly assigned to receive RPT or an attention-control condition. The attention-control condition involves pairing a socially withdrawn maltreated child with a peer of similar play abilities. At a 2-week post- and 2-month follow-up assessment, children assigned to RPT demonstrated decreases in



solitary play and increases in positive interactive play. RPT children were also rated as having higher social, interpersonal, and self-control skills, and fewer internalizing and externalizing behaviors (Fantuzzo et al., 1996). The most recent study replicated previous results for increases in positive interactive play and lower levels of solitary play in a larger group of Head Start children at a 2-week post-treatment assessment period (Fantuzzo et al., 2005). Fantuzzo and colleagues noted the important role that family volunteers have in the effectiveness of this treatment. For instance, if they are socially high-functioning and establish a caring and trusting relationship with their children, they are more likely to enhance the accessibility and utility of this intervention. Together these studies suggest that maltreated children benefit when appropriate social skills are modeled, and strong relationships are established between the child and other influential individuals (e.g., parents, siblings, clinicians, teachers).

Udwin (1983) conducted a study with preschool children removed from their homes and placed into institutional care due to emotional neglect and/or abuse. Thirty-four children between the ages of 3 to 6 years were randomly assigned to receive either imaginative play training or a control group, with each condition being subdivided into small groups of four to six children participating in a total of 10 play sessions. Groups in the control condition engaged in construction type activities (e.g., block-building, puzzles) thought to be unrelated to imaginative skills. The first three sessions of the experimental condition consisted of playing with puppets, the children were read stories and instructed to enact roles of the characters during the next three sessions, and during the last four sessions the children were instructed to create their own story plots and props relevant to a provided theme. Observational measures were conducted by two blind

research assistants at pre-treatment and a 4-week follow-up. Children assigned to the experimental condition demonstrated significant increases in levels of imagination, divergent thinking factors, affect, and cooperation and interaction with peers. Although treatment protocols were not specifically outlined, the results appear to indicate that additional creative tools (e.g., puppets, storybooks) can be beneficial for some thinking, behavioral, and social problems in maltreated children removed from parental custody.

Reams and Friedrich (1994) conducted a similar study with preschool children who were attending a therapeutic daycare specialized in treating abused children. Thirty-six preschool children (3.5 to 5 years) who were either a victim or a sibling of maltreatment received 15 weeks of typical milieu treatment. Children randomly assigned to the experimental condition received supplemental individual directive play therapy. Play therapy focused on exploration of feelings and details about the abuse and taught coping strategies for past and potential future abuse. Teachers and parents completed self-report and observational measures during a 2-week period before, after, and following treatment. A 2-month follow-up assessment was also conducted. Despite the lengthy assessments, the study only revealed one significant finding such that the children in the treatment condition demonstrated less isolated play during the 2-week post-assessment. Lack of significant findings from this study may be related to the lengthy assessments (i.e., children lose attention and motivation) and lack of treatment adherence measures. To avoid these limitations, future investigations in preschool-aged maltreated children should probably employ shorter and engaging assessments, and provide details concerning adherence to developed assessment and intervention methods.

Overall, results from the aforementioned studies suggest that services to young child maltreatment victims in foster care, school, and therapeutic day-care settings should be structured and intensive. Programs such as these appear to have beneficial effects for maltreated children's self-esteem, cognitive functioning, and social skills, particularly when appropriate skills are modeled by trusted individuals and additional creative tools (e.g., puppets, storybooks) are employed. Outcomes may be enhanced by blind assessors employing shorter, more interactive, and objective measures as well as providing details concerning adherence to developed assessment and intervention methods.

### **Child-Focused Treatment Programs Specific to Safety Skills**

While the previous studies provide promising results in children who have been maltreated, none of them specifically target safety skills. The majority of programs aimed at safety skill acquisition have been conducted with non-maltreated children, child victims of sexual or physical abuse, and children with developmental disabilities. Bevill and Gast (1998) reviewed literature regarding teaching safety skills to children and noted that limited studies on skills training in the home environment prevented conclusive statements on the most effective methods. Across all child-focused treatments, a strong evidence-base exists for Behavioral Skills Training (BST). Treatment procedures of BST typically involve the trainer presenting brief rationales and instructions, modeling appropriate skills, and providing reinforcement and corrective feedback while the child practices the modeled skills. The efficacy of BST in non-maltreated children has been evaluated in the prevention of sexual abuse (see Wurtele & Owens, 1997) and stranger abduction (see Johnson et al., 2005; Miltenberger & Thiesse-Duffy, 1988). These studies have provided the framework for the development and evaluation of BST to other safety

skill training programs as similar assessment and training methods are utilized across studies.

BST sessions typically include stories, games, films, and dolls to assist children in learning, discriminating, discussing, and role-playing appropriate prevention skills. Children are educated by listening to stories and viewing pictures that depict appropriate versus inappropriate and high-risk versus low-risk situations. The educational component is used to assist children in discriminating risk levels, and respond accordingly. If a high risk situation is identified, children are taught to employ the “No-Go-Tell,” prevention approach. Through intensive behavioral training children are taught to shout “No!” leave the situation (Go), and tell an adult (Tell).

Outcomes of BST have been demonstrated utilizing the ‘What If’ Situations Test (WIST; Wurtele, Hughes, & Owens, 1998), which has been considered the most commonly used and psychometrically sophisticated measure of prevention knowledge and skills in children (Boyle & Lutzker, 2005). The WIST has the advantages of being easily modified to be applicable for different skill-based training programs, being short (approximately 10 minutes), and maintaining attention because of the story-telling format (Wurtele, Hughes, & Owens, 1998). The WIST contains descriptions of hypothetical and novel vignettes of high and low-risk situations. After each vignette is read, children are asked to identify risk level (e.g., okay/not okay). If children identify risk, they are instructed to both verbally report and behaviorally respond (e.g., show me what you would say and do). If children indicate the “tell someone” response, they are further prompted to indicate who they would tell, and what they would say to that person.

Outcome studies utilizing the WIST as the primary dependent measure indicate that children from the general population can learn social safety skills related to the prevention of stranger abduction and sexual abuse (Bevill & Gast, 1998). Evaluations in these programs have also resulted in improved parent-child communication (Burgess & Wurtele, 1998), and high satisfaction according to teachers, parents, and children (Boyle & Lutzker, 2005). The most commonly reported positive effect from children includes feeling safer and more in control, and little to no empirical evidence exists for increases in children's anxiety or behavior problems (Kenny, Capri, Thakkar-Kolar, Ryan, & Runyon, 2008).

Specific recommendations for the most effective use of BST include using various forms of interactive materials (e.g., stories, pictures; Harvey et al., 1988; Poche et al., 1981) and role-playing (Miltenberger & Olsen, 1996; Wurtele, Marrs, & Miller-Perrin, 1987). General recommendations include developing a program with developmentally appropriate methods, multiple opportunities for repetition of concepts and skills, and continued training until criterion levels are met (Wurtele & Owens, 1997).

With the exception of Wurtele and Currier's (1996) pilot investigation revealing that both children who had and had not been sexually abused can learn knowledge and skills from BST, no studies have been conducted in victims with confirmed child neglect. Studies evaluating the effectiveness of BST in prevention skills most relevant to the form of maltreatment would enhance the literature. Although not in child maltreatment victims, recent research on the effectiveness of BST indicates that training in situations most relevant to the skills being taught enhances outcomes.

Johnson et al. (2005) used BST in situ training to teach 13 non-maltreated preschoolers stranger abduction skills in various locations of the school environment, and found that all children showed significant gains post-intervention with maintenance at both a 2-week and 1-month follow-up. Himle, Miltenberger, Gatheridge, and Flessner (2004) and Gatheridge et al. (2004) found BST to be effective in knowledge and skill acquisition for gun play in classroom settings. However, when assessments were performed in other locations (e.g., school playground), some children failed to generalize previously learned skills. Subsequent studies performing training and assessments in locations most relevant to skills training (e.g., various places around school) resulted in skill improvements up to three months in children ages 4 to 7 years (Himle, Miltenberger, Flessner, & Gatheridge, 2004; Miltenberger et al., 2004; Miltenberger et al. 2005). More recent evaluations of BST in the prevention of gun play found that children can vary on the amount of training sessions conducted in various environments, with the number of sessions for each environment ranging from one to three (Kelso, Miltenberger, Waters, Egemo-Helm, & Bagne, 2007). Together these findings indicate that young and older children can learn and maintain prevention skills related to gun play and stranger abduction when training and assessments occur in various relevant environments.

Particularly relevant to child victims of neglect are studies evaluating the efficacy of BST in children with disabilities. Similar to studies conducted with children from the general population, these studies suggest that training and assessments occurring in the most relevant environment are the most effective. A group of 7 elementary-aged children with moderate and severe disabilities received BST for stranger abduction in a classroom setting (Watson, Bain, & Houghton, 1992). Performance data indicated that six of the

seven children demonstrated the verbal component (“no,”) by the end of training. However, only four children maintained this component when tested on a school playground and five of the children did not generalize the (go) and (tell) components. Gast, Collins, Wolery, and Jones (1993) found 4 preschool-aged boys with developmental and speech and language delays unable to generalize skills for stranger abduction to untrained settings until in-vivo instruction was provided. After in-vivo instruction, three of the boys demonstrated skill acquisition and maintenance at a 2- and 4-week follow-up. Group and simulated environmental training appears to be less effective in children with disabilities. Thus, individualized or smaller group trainings should occur in various settings of the natural environment for optimal generalization and maintenance effects. Future investigations should be conducted to demonstrate the efficacy of BST skills training in home environments and with a more broad range of prevention skills.

Although not in home settings, some controlled single-case studies have indicated that BST is effective in teaching skills relevant to home safety. Jones and Kazdin (1980) used pictures to assist in non- and emergency discrimination with children between the ages of 3 to 6 years. BST resulted in superior discrimination abilities in all children, and behavioral responses to emergencies were superior in children receiving BST as compared to no-training and teacher-directed training. Jones, Kazdin, and Haney (1981a; 1981b) taught 5 school-aged children emergency fire escape procedures utilizing a multiple baseline design to demonstrate outcomes. Training occurred in simulated bedrooms at the children’s school with the number of training sessions ranging from 13 to 35 sessions. Children were trained with nine different scenarios on how to respond

appropriately to emergency fire situations. Significant improvements in both overt and self-report behavior of fire safety skills maintained at a 2-week post-training and a 5-month follow-up assessment. Results from these studies are encouraging for teaching children skills relevant to home safety. However, intense training appears to be necessary to demonstrate efficacy, limiting the feasibility of this method to some extent.

Early investigations revealed that despite parents believing their children know home safety rules and skills, many children could not verbalize or recognize their parents home safety rules for both daily and emergency decision-making (Peterson, Mori, & Scissors, 1986). Although many high-risk situations are hard to predict, Peterson notes that at the very least children should be raised in a safe home environment, and should know how to respond in the event of an emergency (Peterson, 1989).

Building on previous investigations (Jones & Kazdin, 1980; Jones, Kazdin, & Haney, 1981a; 1981b), Peterson (1984a) developed and evaluated a home safety program for high-risk “latchkey” children who spend increased amounts of time in the home unsupervised. Peterson (1984a) proposed that her “Safe at Home Game” was more feasible as it focused on teaching many different home safety skills as opposed to just one skill (e.g., fire safety). Numerous controlled investigations supported the efficacy of this program in both preschool and school-aged children, and in classroom and home environments (Mori & Peterson, 1986; Peterson, 1984a; 1984b).

The “Safe at Home Game” teaches children how to discriminate between safe and unsafe situations, choose behaviors that range from unacceptable to optimal, and respond if faced with an emergency or high-risk situation. Three modules may be utilized to train children how to respond to emergencies, encounters with strangers, and food selection



and preparation needs. Most relevant to child victims of neglect and unintentional injury is the emergency module that specifically trains children how to best proceed with emergencies relating to cuts and fires in the home. Verbal and visual aids (e.g., statement and picture of wrapping clean cloth on cut) are used to assist children in discrimination and skill acquisition of appropriate safety responses. Initially, children use the visual aids to assist in discriminating between un- and acceptable responses to burns and cuts. Then children begin discussing the responses and other possible solutions with the facilitator providing reinforcement and corrective feedback. Next children engage in role-playing and explaining why responses were acceptable or not. Training continues until children are able to both explain rationales for responses and act out appropriate responses. Children are rewarded for correct responding with stickers in a weekly session chart. On average, 1.5 hours were needed to teach each safety skill with many trainings sessions being approximately 30 minutes.

Similar to the WIST role-play assessment, children are asked “if you were home in a given situation, show and tell me what you would do.” Situations are specified for clarity (e.g., if you were alone), and if the presented situation involves another person, (e.g., if just you and your sister were home) the clinician enacts the role of the other person (e.g., sister). Blind assessors manually record and audiotape children’s verbal and role-play responses, with inter-rater reliability estimates ranging from 0.85 to 0.99.

Overall results from Peterson’s evaluations indicate that the “Safe at Home Game” is superior to less interactive training models and children of all ages and socioeconomic levels demonstrate benefits from the program. Results suggested that individual home-based training is more effective than group classroom-based, problem-solving training is

effective in creating safety plans, home safety rules are best learned by practicing and over-rehearsal in the home environment, illustrated material assists with learning and generalization, and motivated sibling and parent involvement can make program more effective (Mori & Peterson, 1986; Peterson, 1984a; 1984b; Peterson, Mori, Selby, & Rosen, 1988).

Peterson (1989) recommended that home safety programs in general should provide in-vivo training as specific incidents in the home arise, safe-proof the home and maintain hazard reduction, and keep emergency safety plans available to children. Although not specifically in child victims of neglect, Peterson's studies were directly relevant to key aspects of physical neglect (i.e., home hazards, lack of supervision, unintentional injuries). Thus, future studies utilizing similar assessment and training procedures should be developed and evaluated in home-based treatments for victims of physical neglect.

### **Child-Focused Safety Skill Training Incorporated within In-Home Parental Treatment for Physical Neglect and Substance Use**

There is a great need for child-focused treatments aimed at enhancing safety skills (Becker et al., 1995; Corcoran, 2000; DePanfilis, 2006; Thomlison, 2003; Wekerle & Wolfe, 1993), particularly those that are integrated into parental maltreatment programs (Liller & Sleet, 2004; Runyon et al., 2005). Specific to child-focused treatments, researchers have demonstrated favorable outcomes in social and other relevant skills in child victims of abuse and neglect (Fantuzzo, Manz, et al., 2005; Fantuzzo, Stovall, et al., 1987; Reams & Friedrich, 1994; Udwin, 1983). However, these studies have not examined safety skills in children. Child-focused treatments using BST (Behavioral Skills Training) have demonstrated favorable outcomes in general safety skills (e.g.,

stranger abduction, sexual abuse training, gun play in classroom environments) in children with and without histories of maltreatment (see Gast et al., 1993; Miltenberger et al., 2004; Johnson et al., 2005; Watson et al., 1992; Wurtele et al., 1991), but none of these studies were specific to skills relevant to home safety. BST methods can successfully teach children home safety skills (see Jones & Kazdin, 1980; Jones, Kazdin, & Haney, 1981a; Mori & Peterson, 1986; Peterson, 1984a). However, no investigators have attempted to develop and evaluate these methods in child victims of neglect.

Parental and family-based treatment programs have been successful in treating problems associated with child maltreatment (see Brunk, Henggeler, & Whelan, 1987; DePanfilis & Dubotwitz, 2005; Fisher & Chamberlain, 2000; Hughes & Gottlieb, 2004; Timmer et al., 2005; Meezen & O'Keefe, 1998a; Wolfe, Sandler, & Kaufman, 1981). However, child neglect is less developed, particularly as relevant to home safety (see Dawson et al., 1986; Gaudin et al., 1990). Home-visiting programs relevant to home safety (e.g., Healthy Start, Healthy Families, Nurse Family Partnership) have only been conducted with families at-risk for future child maltreatment. Some evaluations of these programs have found reductions in childhood injury and (Duggan et al., 1999; Kitzman et al., 1997; Olds et al., 1998) and others have not (Duggan et al., 2004, 2007; St.Pierre & Layzer, 1999; Wagner & Clayton, 1999). Additionally, more rigorous evaluations of home-visiting programs have failed to find significant results in child maltreatment rates (see Chaffin & Friedrich, 2004; Leventhal, 2005), particularly when substance use is present (Eckenrode et al., 2000).

In-home services provided by Project Safe Care have demonstrated positive outcomes in home safety in neglectful populations (Gershater-Molko, Lutzker, & Wesch, 2003).

However, these treatments were primarily parent-focused and specific components of child-focused treatments were not provided. Additionally, Project Safe Care is not recommended for families with co-morbid substance use problems (Gershater-Molko, Lutzker, & Wesch, 2003), which is estimated to be in 60% of the homes for which child abuse and neglect has been found to occur (see National Clearinghouse on Child Abuse and Neglect Information [NCCANCH], 2003). Seventy percent of child abuse and neglect cases are exacerbated by parental substance use (Reid, Macchetto, & Foster, 1999). Findings such as these have lead state governments to work on defining an additional subtype of child neglect associated with parental substance use (DePanfilis, 2006). Thus, there is a great need for the development and evaluation of child-focused home safety skills training for families referred to the child welfare system for physical neglect and substance abuse.

Family Behavior Therapy (FBT) is a robust family-based treatment program capable of addressing a wide-array of problems including the concurrent treatment of parental substance abuse and child maltreatment. For instance, FBT has amassed support in the treatment of substance abuse in both adolescents and adults (see Azrin, Acierno et al., 1996; Azrin, Donohue, Besalel, Kogan, & Acierno, 1994; Azrin, Donohue et al., 2001; Azrin, McMahon et al., 1994). Inspired by the pioneering work of John Lutzker and colleagues (Lutzker, Frame, & Rice, J. M., 1982) an ecobehavioral intervention that included FBT components provided preliminary efficacy in a sample of 47 caregivers, half of which were founded for child neglect (Donohue & Van Hasselt, 1999). FBT provided 16 home-based sessions of approximately 1.5 hours to all participating family members. This comprehensive treatment sought to improve family communication,

positive familial activities and interactions, child management skills, stress levels, and home safety. Home safety interventions involved clinicians and all family members touring the home to identify and ameliorate hazards with safety equipment and descriptive praise for safe and stimulating aspects of the home. Importantly, FBT incorporated child-focused interventions focused on teaching children to recognize early signs of danger and decrease risk of harm through safety planning and strategies. The home safety procedures were very similar to those found effective in neglectful populations (Tertinger, Greene, & Lutzker, 1984), and behavioral observations provided anecdotal support for the home safety and child-focused interventions. Formal measures conducted at post-treatment found significant improvements in parents perceptions of themselves and their children on a variety of measures. For instance, caregivers perceived themselves as less depressed, restricted, and socially isolated, and their children as more compliant. Overall caregivers were more satisfied with their children, particularly in the areas of children's communication, behavior, and peer relationships. Results from this study suggest that comprehensive in-home treatment services involving neglect victims, perpetrators, and other family members can lead to improved parental and child outcomes.

Preliminary outcome success of FBT in both substance use and child maltreatment has led to its most recent evolution to concurrently treat these highly co-morbid problems. Currently, the efficacy of FBT is being evaluated in a randomized clinical trial of mothers who abuse substances and have been founded for child neglect (NIDA 1R01DA020548-01A1). This version of FBT incorporates evidence-based protocols to reduce substance use (see Azrin, Acierno et al., 1996; Azrin, Donohue, Besalel, Kogan,

& Acierno, 1994; Azrin, Donohue et al., 2001; Azrin, McMahon et al., 1994), ameliorate home safety hazards (Tertinger, Greene, & Lutzker, 1984), and improve youth conduct (Forehand & McMahon, 1981). All treatments are skill-oriented and involve extensive role-playing, behavioral rehearsal, and practice assignments between sessions to enhance generalization of skill acquisition. Once a particular intervention is fully implemented, it is reviewed and practiced when applicable. Program therapists utilize standardized checklists to prompt implementation of prescribed protocols, treatment handouts, and practice assignments. Preliminary uncontrolled and controlled single case studies (Donohue et al., 2010; Lapota, Donohue, Warren, & Allen, 2011, Romero et al., 2010; Romero, Donohue, & Allen, 2010) using this version have indicated benefits of FBT, including reductions in drug use, DSM-IV symptoms, problems associated with parenting, child abuse potential, objective measures of home hazards, and family conflict. For instance, Donohue et al. (2010) implemented FBT in a family that had an extensive history of domestic violence. The participating mother was also diagnosed with Substance Abuse, Bipolar Disorder, and Post-Traumatic Stress Disorder (PTSD). Twenty sessions of FBT over a 6-month time period resulted in the elimination of home hazards related to sharp objects, toxins (e.g., medications, cleaning detergents, pesticides), and exposed electrical outlets. An uncontrolled evaluation of a mother referred for Substance Dependence and physical neglect also demonstrated great promise in the reduction of home safety hazards (Romero, Donohue & Allen, 2010). During pre-treatment the objective Home Safety and Beautification Checklist (HSBC) identified five hazards related to toxins, weapons, and heavy objects. Post-treatment results conducted one-month following the participant's last session indicated no home hazards. Lapota,

Donohue, Warren, and Allen (2011) conducted an uncontrolled evaluation of a mother referred for Amphetamine Abuse, child neglect, and domestic violence. During post-treatment and a 4-month follow-up, the family was no longer living in the home assessed at pre-treatment. However, only minor home safety risks were present during the post-treatment and 4-month follow-up assessments as compared to more risky safety hazards identified during pre-treatment (i.e., sharp corners on furniture, spoiled food, accessible cleaning supplies, tipsy heavy boxes). At post-treatment and the 4-month follow-up, the participant had placed covers on electrical outlets and decorated her second home to make it more stimulating for her children. Definitive conclusions from these studies are limited by a lack of experimental control.

The effectiveness of the Home Safety and Beautification intervention was examined to some extent in a single-case controlled multiple-baseline evaluation of a mother referred for problems associated with substance abuse and physical neglect (Romero et al., 2010). When home safety and communication skills were targeted together, results indicated a 70% reduction of home hazards and messes from baseline, with many of the improvements being maintained at a 1-month follow-up assessment.

Together these studies indicate that adult-focused FBT appears to offer great promise in decreasing home hazards in families with co-occurring physical child neglect and substance abuse and is worthy of future study. Supported by the aforementioned results, the present study sought to develop and evaluate a child-focused FBT intervention guided by empirically-validated strategies for treatment development.

## **Treatment Development Process**

Several models have potentiated the development of evidence-based treatments (Carroll & Nuro, 2002; Onken, Blaine, & Battjes, 1997; Rounsaville, Carroll, & Onken, 2001). Onken and colleagues (1997) reported a three-stage model of behavioral treatment development research that begins with clinical ideas innovation and concludes with controlled outcome research and dissemination. Stage I involves the initial development and ongoing revision of manuals, protocol checklists, assessment measures, and program procedures. Training along with pilot and feasibility testing are also conducted to further inform treatment development decisions and modifications. Stage II consists of implementing the newly developed treatment in a randomized clinical trial. If the newly developed treatment demonstrates efficacy, stage III begins. Stage III addresses numerous clinical issues including further modifying the treatment to ensure it will generalize to other populations and settings, be able to be implemented by various types of practitioners, and be cost effective.

In a series of NIDA workshops guidelines were developed to more specifically define stage I research and delineate the transition from stage I to stage II (Rounsaville, Carroll, & Onken, 2001). To accomplish this goal stage I was subdivided into sub-stages “a,” and “b.” The main tasks of stage Ia is to begin the early development and refinement of the treatment manual writing process. Based on information derived from behavioral observations and/or novel conceptualizations, slight modifications of existing effective treatments are made. If treatments require extensive modifications or treatment-specific outcome measures are not available, stage Ia can also include arranging focus or research team groups to assist with the process. The team provides feedback about the feasibility



and acceptability of the newly developed assessments and/or treatments. Stage Ib involves pilot testing that usually progresses from uncontrolled single-case studies, controlled single-case studies, and eventually larger groups of pilot participants.

To more specifically define the development of treatment manuals Carroll and Nuro (2002) proposed a three stage model. Similar to previous model, stage I involves the utilization of creativity and originality to initially develop ideas including intervention feasibility and efficacy. The specific structural elements of the treatment manual should include information regarding duration (e.g., length of complete treatment, number and length of sessions), format (i.e., family versus individual), and level of manual flexibility. Stage II involves implementing the intervention in several pilot cases to determine if its standardized form is beneficial to individuals in the target population. During this stage multiple methods can be utilized to further modify and enhance the manual. For example, therapist experiences, review of session video or audiotapes, and analysis of outcome data can be used to improve specific and general steps as well as issues that inevitably arise during clinical implementation. Treatment implementation typically begins with uncontrolled cases and ends with more rigorous controlled case studies. If the treatment demonstrates promise in the aforementioned stages, the investigators may proceed to stage III to determine if the manual is effective in diverse populations and settings.

### **Manual Development**

Guided by the aforementioned stage I model for treatment development, a child-focused safety skill training protocol was developed as part of the present study. This section briefly outlines the results of the treatment development project that involved three major steps: (1) writing the treatment manual and protocols, (2) developing an

outcome assessment measure, and (3) implementing the newly developed protocols in uncontrolled pilot cases.

Behavioral observations of children participating in pilot studies of the adult-focused FBT revealed that children spontaneously engaged in behaviors that put them at-risk for being harmed by home hazards (e.g., placing small objects in mouths, grabbing unsteady heavy objects, placing metal items in uncovered electrical outlets). Additionally children as young as 4 years appeared capable and excited to generate ideas, perform assignments, and demonstrate skills relevant to FBT's Home Safety and Beautification intervention (Donohue & Van Hasselt, 1999; Romero et al., 2010). These observations led to initial development ideas for the child-focused intervention. The treatment was based on the integration of several empirically-validated treatments relevant to home safety (Donohue & Van Hasselt, 1999; Gershater-Molko, Lutzker, & Wesch, 2003; Peterson, 1984b) and Behavioral Skills Training for children (Johnson, Miltenberger, et al., 2005; Jones, Kazdin, & Haney, 1981a; Wurtele et al., 1989) with appropriate modifications for the present population (i.e., in-home).

The development of the treatment protocols was separated into four distinct phases: (1) integration and modification of existing treatment manuals, (2) review and edits of protocol drafts, (3) role plays of the protocol steps, and (4) implementation of the newly developed protocols with several uncontrolled pilot cases.

A research team consisting of 12 undergraduate and graduate students, and a doctoral level research advisor assembled for 60 minutes on a weekly basis for approximately 12 months to develop the treatment protocol. The team was comprised of individuals who were relatively familiar with providing treatment services to the target population. The

research team was diverse in their ethnicity, age, employment, and clinical research/practice background. The diverse composition of the team increases the likelihood that the resulting protocol was culturally sensitive and applicable to a wide-variety of clients.

In the first phase, aspects of existing treatments were combined and modified to form a treatment aimed at teaching children information and skills relevant to ameliorating common home hazards. Aspects of existing treatments along with novel ideas from the research team were integrated based on clinical experience, theory, and behavioral observations in pilot FBT cases. The researcher reviewed and edited the initial protocol drafts to ensure the directions were clear and simple to follow. Specific steps for treatment implementation with examples and therapist-prompting lists were created to serve as a therapist self-report of treatment adherence.

The second phase of treatment development involved reviewing and editing the treatment protocol with research team members. A team of research assistants reviewed and edited the protocol and were asked to provide feedback or suggestions to improve the treatment. In the weekly research meetings, team members reviewed the revised protocol, and determined via consensus if additional reviewing and editing was required. To determine if further modifications were needed, the resulting protocols were evaluated in role-plays involving simulations of client treatment sessions. During the role-plays, team members took turns playing the role of the therapist and child client. The clinical feasibility of the intervention was assessed through the role-play process. After each role-play, the team discussed ease of administration and potential revisions to the protocol. Problems encountered during this process were reviewed until a solution was identified.

The final phase of protocol development consisted of implementing the developed safety skill training with several children participating in FBT as a result of being referred by the Clark County Department of Family Services for child neglect and maternal substance use. The participating children (4 to 8 years) and adults met the study ex- and inclusion criteria (see Procedures).

Many lessons were learned from the uncontrolled case studies and subsequent modifications to the safety skills training were made. For instance, many children appeared to have difficulties with attention and concentration during both the assessment and training phase. Thus, the team implemented several strategies to make the training more interactive and interesting. Once the treatment appeared feasible, it was determined that a measure needed to be developed to formally assess the children's skill acquisition. Thus, an assessment measure was developed, modified, and implemented with some of the pilot cases (See Assessment Process and Measures). Behavioral observations and pilot results from the newly developed assessment measure provided anecdotal support for the assessment method and home safety skill trainings. The children were able to perform the desired skills with increased attention and excitement. Additionally, all participating mothers reported being "very satisfied," with the safety skill training and reported improvements in their children's ability to remain safe from home hazards.

The final version of the protocol included a newly developed assessment measure, materials required, procedural steps, participant worksheets, guidelines for reviewing the homework, and a therapist prompting list. After 12 months of extensive treatment development and utilization of the protocols in pilot cases, the FBT safety skill training

appeared promising and feasibly capable of teaching children as young as 4 years skills related to keeping themselves safe from home hazards.

### **Specific Aims and Hypotheses**

This study presents the initial evaluation results of the newly developed child-focused safety skills treatment within Family Behavior Therapy (FBT) for mothers founded for child neglect and abuse of illicit drugs. Two case trials were conducted. The hypotheses of these studies were that implementation of the child-focused home safety training would result in significant:

- 1) increases in behavioral role-play assessment scores for the participating children in home hazard problem scenarios
- 2) increases in parental satisfaction for the participating children in protecting themselves from home hazards.

## CHAPTER 3

### RESEARCH METHODS

This study consisted of two cases evaluated utilizing multiple baseline designs (across behaviors). The first section describes study inclusionary and exclusionary criteria. Both cases were administered similar assessment measures and treatment components. Study considerations common to both cases are described first. Case specific methodological information follows for each case separately, including participant demographics, description of probe assessment measures, and description of the respective study design.

#### **Procedures**

##### **Study In/Exclusionary Criteria**

Participants were 2 siblings who had been identified by Clark County Department of Family Services (DFS) as being a victim of child physical neglect. The children were between the ages of 4 to 7 years and appeared to display age-appropriate verbal and physical abilities. They had no history of being victimized by sexual abuse. The children's mother was referred to Family Behavior Therapy (FBT) due to identified drug use and child physical neglect. The child deemed "most in need of home safety skill training," by the mother was the first target participant followed by the next child most in need. The mother used illicit drugs 4 months prior to the baseline assessment, did not evidence a history of sexual abuse or a psychotic disorder (i.e., Schizophrenia), was over the age of 18 years, resided locally for at least 4 months with no plans to move for the next six months, was not receiving formal drug abuse counseling during the pre-treatment assessment (which avoided confounds due to pre-existing treatment), was living with the child participants at the beginning of the intervention, had at least one adult significant

other willing to participate in treatment, and was formally diagnosed with Substance Abuse or Dependence during the study pre-treatment assessment.

### **Assessment Process and Measures**

**Comprehensive pre-, post-, and follow-up treatment assessment.** The assessment phases consisted of administering a comprehensive battery of tests to the mother at pre-treatment, one week following treatment (post-treatment), and 4 months following post-treatment. The comprehensive assessments were conducted by blind assessors who were doctoral students enrolled in a clinical psychology program. Assessors received intensive training under the supervision of a clinical psychologist and a neuropsychologist. This training involved studying the assessment manual and modeling and behavioral rehearsals in simulated sessions. During role-plays assessors received corrective feedback and recommendations for improvement.

Assessments were conducted in the families' home and performed according to standardized procedures. The mother's reading abilities were assessed prior to the administration of self-report measures and the mother and her significant other participated in home safety tours (see Measures section). The administration of the comprehensive pre-treatment assessment battery was the mothers' first in-person contact with FBT program staff. Administered measures relevant to the present study included the following:

*Home Safety and Beautification Checklist (HSBC: Donohue & Van Hasselt, 1999).* This checklist was utilized to assess the living conditions including home hazards (i.e., toxins, electrical hazards, sharp objects, heavy objects, small objects, home access, adequate temperature control, adequate food/nutrition), home cleanliness, and home

equipment and materials that facilitate personal and social growth for children (i.e., household items, adequate toys, children books, clothing, and home decorations). The assessor rated each hazard identified in the home on a three point treatment priority scale (i.e., 1 = Minor Treatment Priority, 2 = Moderate-, 3 = High-). Although the measure appears to have good face validity, its validity and reliability are untested.

*Parent Satisfaction with Youth Scale (PSYS; Donohue, Decato, Azrin, & Teichner, 2001).* This self-report measure consists of 12 content items that assess parents' degree of satisfaction with their child in 12 behavioral domains (Home Safety Skills, Communication, Friends and Activities, Curfew, Household Rules, School, Response to Rewards, Response to Discipline, Chores, Alcohol Use, Drug Use, Illicit Behavior) using a scale of 0 to 100% happiness. Reliability and validity of this measure have been previously evaluated, and found to be very good in substance abusing youth and their parents (Donohue et al., 2001).

**Abbreviated probe assessments.** During select treatment sessions, on-going data was gathered from the child participants in abbreviated 15 to 30 minute probe assessments that occurred immediately prior to each treatment session. The first probe assessment was conducted with participant one during the initial treatment session (approximately 1 week following administration of the pre-treatment battery). The probe assessments were conducted in a room in the home with the identified child participant, a trained clinician, and a blind assessor.

A method of assessing child safety skills identified in literature reviews indicated that the 'What If' Situations Test (WIST; Wurtele, Hughes, & Owens, 1998) was the most commonly used and psychometrically sophisticated measure of prevention knowledge



and skills in both young and older child populations (Boyle & Lutzker, 2005). Thus, modifications to make this measure specific to home safety hazards were made and refined based on research team consensus. The newly developed measure is referred to as the Safety Skills Assessment for Children (SSAF-C). The SSAF-C included verbal definitions home hazards (i.e., toxins, electrical hazards, sharp objects, heavy objects, small object) measured in the Home Safety and Beautification Checklist (HSBC: see Donohue & Van Hasselt, 1999 for detailed description). For each item, a verbal definition of the hazard and several examples of the hazard was read to the child participant (e.g., “Sharp objects are found in all homes. Some examples of sharp objects are scissors, knives, some glass, and other pointy things.”). Then a scripted role-play problem scenario was read that was relevant to the hazard, and the child participant was instructed to indicate what would be done. Two standard prompts were utilized throughout the role-play after 5 seconds of silence. An example of the sharp object assessment item is presented below:

*Scenario/Prompt 1:* “Now we are going to pretend. I’m going to pretend like I’m your mom and you are going to be you. Show me what you would do or say if you saw a sharp object in your home.”  
*Prompt 2:* “I don’t have time.”  
*Prompt 3:* “I have to go now.”

Role-play performance was scored on a behavioral rating scale relevant to keeping children safe in the home (0 = Very unlikely-, 1 = Somewhat unlikely-, 2 = Somewhat likely-, 3 = Very likely-). Role play performance was primarily scored based on four factors (e.g., identification of the presence of a hazard, report of a negative consequence, suggestion of an appropriate solution to remedy the hazard, and persistence after the second prompt). Following the role-play, the child was instructed to verbally list all

solutions to the problem and the verbal responses were recorded on the SSAF-C. The SSAF-C was administered to both participants, and the role-plays were rated by the child clinician and a blind assessor. Inter-rater reliability was derived by comparing SSAF-C scores of the two raters (using Cohen's kappa) for each safety hazard. Cohen's kappa was used because it is thought to be a more robust measure than simple percent agreement calculation since it takes into account the agreement occurring by chance and is considered an overly conservative measure of agreement (Strijbos, Martens, Prins, & Jochems, 2006). Inter-rater agreement for participant one ranged between .92 and .95, and for participant two reliabilities ranged from .83 and 1.00. These estimates of reliability were generally high, indicating agreement between raters was acceptable.

### **Description of Family Behavior Therapy Program and Various Contextual Factors**

#### **Relevant to the Implementation of Treatment**

Family Behavior Therapy was performed by two trained psychology therapists who were members of the Achievement Center at the University of Nevada, Las Vegas. Therapists completed intensive training for adult- and child-focused FBT under the supervision of a licensed clinical psychologist certified in FBT. Training involved studying protocol steps, reviewing detailed treatment protocols, and intensive role-plays. During training role-plays therapists received corrective feedback and recommendations for improvements in treatment delivery. Prior to certification as an FBT program therapist, individuals were required to conduct all intervention protocols with at least 90% protocol adherence during simulated role-plays. One therapist primarily worked with the participating adult family members and the other therapist primarily worked with the participating children. The child clinician for the first case was a graduate student

obtaining her doctoral degree in clinical psychology, and the adult clinician was a bachelor's level clinician with one year experience in FBT. For the second case, the two clinicians switched between child and adult clinician roles. Thus, the bachelor's level clinician provided safety skill training to the second child participant.

Strategies were employed to ensure content in the treatments were administered with integrity. Therapists documented the techniques used during treatment sessions via protocol checklists that indicated the specific steps necessary for effective employment of treatment procedures. The checklists were used to determine therapist adherence and competence. During on-going weekly clinical supervision sessions, therapists were provided corrective feedback regarding their ability to follow the protocol and performance in session. All sessions were audio-taped and supervision was provided via audio-tape review and simulated role-plays. If any issues, such as therapist drift occurred, therapists received corrective feedback from the supervisor regarding how to return to the treatment protocol.

The comprehensive FBT treatment program consists of 20 sessions occurring once a week over a 6-month time period. Each session was 90 to 120 minutes in duration; with longer sessions occurring during the first few weeks of treatment. FBT is a home based treatment program that includes the mother participant, her children (child participants), and adult significant others. FBT contains the newly developed child-focused safety skill intervention and multiple adult-focused interventions organized into treatment modules that include Treatment Planning, Stimulus Control, Communication Skills Training, Child Management, Self Control, Basic Necessities and Safety Assurance, Home Safety and Beatification, Behavioral Goal Setting, Job Club, Arousal Management, and

Financial Management. All treatments were designed to be implemented successively and cumulatively. Each treatment module includes a treatment rationale, therapist goals for the intervention, materials required to complete the module, an overview of the intervention, procedural steps, practice worksheets, how to review the homework in the following session, and a therapist prompting form.

### **Description of the Newly Developed FBT Child-Focused Home Safety Skill Training**

The developed intervention protocol included a story, solutions, role-plays, and activities related to the amelioration of five common home hazards (i.e., heavy, small, and sharp objects; poisons, and electrical outlets). Stories followed a standardized theme with a fictional child character describing a home hazard, displaying excitement to eliminate the hazard by using problem-solving (i.e., thinking hat), and receiving immediate social reinforcement for solving the hazard. Standardized prompts were incorporated into the stories to allow for individualized input and interaction from the child. The standardized safety skill story relevant to electric outlets is presented below:

*Clinician story narration:* "I have a very important story to share with you! The story is about a girl named Bright Brandy who loved to play her dancing videogame with her cousin Smart Sophie. One day Smart Sophie and Bright Brandy were all ready to begin their dance-off when they saw wires sticking out where the videogame was plugged in. Bright Brandy really, really wanted to have the dance-off so she was just about to plug the game in when Smart Sophie appeared from behind and said, 'Brandy stop! You can't plug that in when wires are sticking out like that. Electrical wires can shock you. We had a problem just like this the other day at my house.' When Bright Brandy heard this she knew she had a problem that needed to be solved right away."

*Prompt to child:* "Tell me some ways you can tell if electrical outlets or wires could be a problem in your home."

*Clinician story narration:* "Wow you are really Bright, just like Bright Brandy! Let's find out what happened next. Bright Brandy turned to Smart Sophie and said, 'why are wires sticking out dangerous? What could happen?' Smart Sophie started telling Brandy all of the dangerous bad things that could happen if they left the wires sticking out."

*Prompt to child:* "Tell me some things you think Smart Sophie told Bright Brandy."

*Clinician story narration:* "Did you already read this story? You are so bright you are burning my eyes!! Next Bright Brandy turned to Smart Sophie and said, 'Now I know we definitely can't plug our game in with those wires sticking out, but I really, really wanted to have our dance-off.' Smart Sophie said, 'We still can. My sister told me the first thing you are supposed to do when you have a problem is put on your thinking hat and think of all the different things you can do to solve the problem.' Bright Brandy said, 'That sounds fun. Let's put on our thinking hats.' When they put on their thinking hats there were tons of ideas popping in their head. Just like when a bright light bulb goes off."

*Prompt to child:* "Tell me some ideas that you think were popping in their heads."

*Clinician story narration:* "Wow you came up with so many smart ideas. Let's see if Bright Brandy was able to have her dance-off and help make her house safe. After all of the thinking hat ideas, Bright Brandy decided to tell her mom right away. She told her mom about the wires, the dangers of the wires, and some things that could help, like using that black tape or using those smiley faced outlet covers. Bright Brandy and her mom also made a list of all the grown-ups she could ask if she ever needed help with dangerous things. Bright Brandy's mother was so proud of her that she fixed the wires right away and Bright Brandy and Smart Sophie danced the night away."

Immediately following the 5- to 10-minute story, the clinician and the child went to one room in the home where the target hazard was present. The child was instructed to identify the hazards in the room and using both child-provided and scripted solutions, the clinician modeled skill-based solutions. While receiving reinforcement and corrective feedback, the child practiced the modeled skills. Together the child and the clinician corrected identified hazards. A sample script for these procedural steps follows:

*Clinician:* "Now we are going to go on a safety hunt in this room. On safety hunts, we look up, down, and all around. Tell me some ways you can tell if electrical outlets or wires are a problem in this room."

*Clinician:* "Great job finding those! Now let's put on our thinking hats, just like Bright Brandy and Smart Sophie. Tell me all the things we could do or say to fix these problems."

*Clinician:* "Wow, you thought of so many awesome ideas. Now we're going to practice. First, I'll pretend to be you and you will pretend to be your mom. Then we'll switch and I'll pretend to be your mom."

*Clinician:* "Great job suggesting outlet covers. Since I have outlet covers and I'm an adult, we can finish our safety hunt by putting the covers on uncovered outlets in this room."

Next the child demonstrated their newly learned skills to their entire family. The family was assigned homework to correct hazards in other rooms with provided safety equipment.

*Clinician:* "Today [child's name] did an amazing job of learning how to keep the family safe from electrical outlets. [Child's name] is going to show everyone some of the things he/she learned."

*Clinician:* "Wonderful job! Here is the safety practice assignment for the next week. Since today is Monday and [child's name] found uncovered electrical outlets and put outlet covers on them, we'll write this down with a sticker in the Monday box. The practice assignment is to do the same thing at least two other days this week in other rooms in the house. If this is done by the next session, [Child's name] will get a prize from the safety reward bag and a sticker on the safety practice assignment chart. How can each one of you help [child's name] with the safety assignment this week? Can everyone commit to completing this assignment? Great! Everyone will sign to commit to the assignment. Here are some more outlet covers and electrical tape to help you. I am really looking forward to reviewing your safety solutions and giving a reward next week."

### **Description of Adult-Focused FBT Interventions**

During the first treatment session, the adult-focused treatment began with a treatment plan. Subsequent modules were implemented according to the participant's treatment plan. Each of the FBT adult-focused interventions are described below.

**Treatment planning.** This module showed the adult participants each of the FBT interventions that could be implemented, including a brief one sentence rationale as to what each treatment targeted. Adult participants utilized this menu-type list to rank order the interventions in terms of priority.

**Stimulus control.** Assists adult participants in increasing time spent with safe people, places, and situations because individuals who spend time in at-risk situations or around at-risk people are more likely to engage in drug use, or behaviors consistent with child

neglect. This intervention helped the adult participants identify safe situations and plan to spend time in those situations. It also taught the adult participants how to address risky situations or people to increase their ability to avoid drug use. To increase positive parenting behaviors, adult and child participants worked together to determine a pleasant family activity that would be performed each week.

**Home safety and beautification.** Assists adult and child participants in identifying and remedying safety hazards and cleanliness issues as the therapist and the family members tour the home. The therapist provides descriptive feedback to the family about ways to eliminate home hazards and increase the cleanliness and appearance of the home. Parents of neglected children have been found to be unaware of potential hazards, and often the homes of this population are messy and lacking important items, such as age appropriate toys, adequate clothing, and decorations. The goal of this intervention was to increase family awareness of home hazards, and make the home a safer and more stimulating for children.

**Self-control.** This module is aimed at teaching adult participants how to decrease impulses to use drugs and decrease behaviors consistent with child neglect. This intervention helps the adult participants become more aware of triggers for impulsive behavior. Participants were taught a series of steps to control their thoughts and behaviors by interrupting thoughts, urges, and physical sensations related to drug use and behaviors consistent with child neglect.

**Child management.** This intervention is aimed at teaching adult participants new parenting skills including utilizing non-aversive punishment, teaching children more

desirable behaviors, ignoring undesirable behaviors, and positively reinforcing children when they engage in desirable behaviors.

**Communication skills training.** This intervention is used to teach families more appropriate ways to communicate to increase the rate of positive exchange between family members. Adult participants and their adult significant others were taught to identify and share things that were appreciated about each other, and ask for a specific action such as support in a positive manner.

**Arousal management.** This module was designed to decrease negative interactions within the family and is often used in conjunction with the communication skills training. The adult participants were taught techniques to decrease their level of anger or arousal including relaxation skills.

**Basic necessities and safety assurance.** This module was utilized to teach the adult participants how to be aware of the status of certain basic necessities, and how to handle emergency situations that may occur. It begins with an assessment of possible emergency situations such as adult to adult aggression or violence, not having enough food, past due bills, unsanitary conditions in the home, and court hearings. When items are endorsed “present” or “may soon occur,” the therapist works with the adult participants to brainstorm solutions.

**Job club.** This module assists adult participants in learning ways to obtain satisfying jobs opportunities. In addition, the therapist teaches the participants job interviewing skills, and provides support to the participants during the process of getting a job.

**Financial planning.** This intervention was utilized to teach adult participants how to effectively manage their finances. Participants learn how to effectively assess their



financial situation, create a budget, brainstorms solution for debt situations, and establish savings.

### **Managing Attrition**

As indicated in the literature review above, attrition was expected to occur. Therefore, therapists called the mother participant prior to each treatment session to ensure she could make the appointment. If the mother had to cancel, therapists attempted to reschedule within a day or two of the original appointment to reduce the time between sessions. Another strategy involved on-going assessment of plans to move during the Basic Necessities intervention.

### **Case Introduction**

Clinton, a 7-year-old African American male, and Kylie, a 4-year-old African American female, were the target sibling child participants for the present study. Their mother, Tonya, a 31-year-old African American female and additional family members were referred to in-home Family Behavior Therapy (FBT) by the local Department of Family Services (DFS). At the time of referral, Clinton and Kylie were living with their mother. Additional family members living in the home included Kylie's twin sister, Dana, and the children's father, Reggie, a 34-year-old African American male. Although Tonya was unemployed, the family was receiving financial assistance for Dana's cerebral palsy disability, and Reggie worked full-time to provide financial support for the family. The parental marriage was notable for several reported and unreported instances of domestic violence.

## **Presenting Problems**

The family was referred to FBT by their DFS caseworker. The initial referral to DFS occurred when Tonya, made a report that her 4-year-old daughter, Dana, evidenced burn marks on her face while in her father's care. Tonya reported a history of domestic violence as well as maternal and paternal substance use. During the DFS investigation, both parents were tested for illicit substances. Tonya's results indicated the presence of methamphetamine, while Reggie's results were negative for all substances. A home visit indicated the presence of multiple home hazards. The multiple problems revealed during the DFS investigation resulted in the families' caseworker referring the family to FBT for substance abuse, child physical neglect, and domestic violence. The caseworker indicated the family was motivated for treatment and would benefit from skills relevant to impulse control, child management, communication, anger-reduction, and home safety. Upon receiving the DFS referral, an initial phone prescreen interview and a comprehensive pre-treatment assessment were conducted in the families' home.

## **History**

The majority of Tonya's childhood was spent living with her grandparents due to maternal substance abuse. Tonya's relationship with her grandparents was described as "loving." However, several daughter-mother relational problems were reported. Specifically, Tonya stated, "I never wanted to end up like my mom. I did not want to put my kids through what I went through."

Tonya and Reggie began a relationship when they were both in their mid-twenties. Shortly after beginning their relationship, Tonya became pregnant with Clinton and the couple married. Over the course of their marriage, Tonya reported that Reggie's

behaviors towards her became increasingly controlling (e.g., limiting her social and family contacts and activities, not allowing her to seek employment) and violent (e.g., destruction of her property, throwing her down a flight of stairs, pushing her head into a windowsill). Tonya reported a history of several instances of infidelity and at intake she admitted that she and Reggie had not had sexual contact for years and slept in separate rooms. At intake, Reggie was on probation for previously assaulting Tonya and the parental relationship was especially strained due to Reggie's recent discovery that Tonya had made the child abuse report to DFS.

At age 6 years, Clinton began exhibiting problems in school and was subsequently diagnosed with Attention-Deficit Hyperactivity Disorder (ADHD). At intake he was not on medications due to reported financial difficulties. Tonya denied prenatal problems or substance use throughout both of her pregnancies. However, Reggie believed that Tonya used substances during her second pregnancy. Kylie and Dana were born 3-months premature and shortly following their birth, the family was informed that Dana had cerebral palsy. During this difficult time, Tonya reported adjustment difficulties, feelings of depression, and her first use of methamphetamines. At intake, Tonya reported that Kylie was extremely compliant, but she worried about her social skills as she was "very shy and quiet." Tonya reported difficulties and frustrations with her parenting abilities due to Clinton and Dana's disabilities. Tonya also reported concerns regarding her children's observations of several domestic violence incidents. She noted that Clinton, in particular, appeared to be modeling aggressive behaviors. Despite these difficulties, Tonya reported strong relationships between her and her children. Indeed, Tonya reported that maintaining custody of her children was the most motivating factor to keep her clean

from drugs. Both Clinton and Kylie's reports of their relationship with their mother and father were positive.

## **Study 1**

### **Study Design**

Clinton's treatment was evaluated utilizing a multiple baseline across behaviors experimental design (see Figure 1). An initial baseline was established for selected home safety skills (e.g., electrical outlets and heavy objects) and these skills were monitored during skills training using probe assessments.

One week after Tonya completed the comprehensive pre-treatment battery, Clinton participated in the phase 1 of the study. In this phase, Clinton completed two probe assessments at the beginning of each of these two sessions. The probe assessments occurred during the first 2-weeks and established a two point baseline for safety skills relevant to electrical outlets. After the first probe assessment, one non-directive session was conducted with Clinton. Following the second probe assessment, Clinton participated in the phase 2 of the study. In phase 2 safety skills training relevant to electrical outlets was implemented. The following week, the third probe assessment assessed post electrical safety skill training and established a three point baseline for heavy objects. Immediately after the third probe assessment, phase 3 began. During this phase, Clinton received safety skills training relevant to heavy objects as well as a review of the previous training related to electrical home hazards. Thus, probe assessments conducted during weeks 4 and 5 assessed post electrical and heavy object safety training. Clinton did not participate in any training or probe assessments during weeks 6 through 11. However, a follow-up probe assessment was conducted with Clinton during week 12.

The study design for Clinton permits the controlled evaluation of safety skill training relevant to electrical outlet and heavy objects. Safety training for electrical home hazards would be considered efficacious if role-play safety skill performance increased in phase 2, and changes in role-play skills did not occur, or were minimal, from phases 1 to 2. Support for safety training for heavy objects and electrical outlets would be found if role-play performance improved in phase 3 assessments. Further, support for the maintenance of skills training for electrical outlets and heavy objects would be found if improvements remained consistent at the follow-up assessment.

## **Study 2**

### **Study Design**

The study design for Kylie was similar to Clinton's, although her probe sessions were delayed a few weeks relative to Clinton. In phase 1 Kylie completed two probe assessments during study weeks 9 and 10. These probe assessments established a two point baseline for skills that were relevant to sharp objects and electrical outlets. After the first probe assessment (week 9), Kylie participated in one non-directive session. Immediately following the probe assessment conducted in week 10, Kylie participated in phase 2. In phase 2, she received safety skills training relevant to household sharp objects. The following week, the third probe assessment (week 11) assessed post sharp objects safety skill training and established a three point baseline for skills relevant to electrical outlets. Immediately after the third probe assessment, phase 3 began. In phase 3 Kylie received safety skills training relevant to electrical home hazards as well as a review of the previous training related to household sharp objects. Thus, the probe

assessment conducted during week 12 assessed post sharp objects and electrical safety training.

The study design for Kylie permits the controlled evaluation of safety skills training relevant to sharp objects and electrical home hazards. Safety training for sharp objects would be considered efficacious if role-play safety skill performance increased in phase 2, and changes in role-play skills did not occur, or were minimal, from phases 1 to 2. Support for safety training for sharp objects and electrical hazards would be found if role-play performance improved in phase 3 assessments.

### **Behavioral Treatment Plan**

The family was chosen for the current study due to child physical neglect in the home (i.e., relatively high number of home hazards identified during the pre-treatment assessment). As indicated in the literature review above, younger children with disabilities are at higher risk of being severely harmed from home injuries. Dana evidenced both of these high risk categories, and had sustained minor injuries as a result of home hazards and lack of appropriate supervision (e.g., bruising from heavy objects falling, burns from hot items). The initial version of the safety skill training required some verbal and physical abilities, and at the time the study was conducted, Dana was non-verbal and had limited physical abilities (e.g., unable to walk, uncontrollable body movements). Thus, Dana was unable to directly participate in safety skills training. However, Dana was present during her siblings' training, and during the siblings' training home safety solutions and role-plays often involved Dana. Dana's risk of being harmed by the identified home hazards was assessed by Tonya's self-report and behavioral observations conducted by therapists. Tonya reported that Dana's access to safety hazards

was limited by safety gates, doors being shut, prohibiting her from certain rooms in the home, and familial supervision. Behavioral observations were consistent with Tonya's report as a safety gate was placed on a stairway, doors to rooms were generally closed, and one family member appeared to be with Dana at all times. Dana's risk level was continually monitored throughout treatment by parental self-report and therapist behavioral observations. After a description of the child-focused safety skills training and the child characteristics that were needed to participate, Tonya indicated that Clinton was the most in need of home safety skills training. Thus, training began with Clinton and followed with his sister, Kylie.

The adult-focused interventions of FBT typically allow the participant to choose the order in which FBT intervention components are implemented from a menu of therapy options (i.e., Treatment Planning module). However, the primary reasons for conducting this study were to examine the efficacy of the child-focused home safety skills training. Since the child-focused safety training includes treatment components similar to the adult-focused Home Safety and Beautification and Child Management modules, these two modules were not listed in Tonya's Treatment Planning menu. Instead, these two interventions were conducted following the conclusion of the children's safety training (after week 12).

During the first two probe sessions, Clinton's safety skill role-play performance for each of the safety hazards identified during the pre-treatment home tour were assessed (e.g., electrical, toxins, and heavy objects). Since his performance during the electrical hazard role-play was given the lowest rating and remained stable during the baseline, safety skill training on electrical hazards was chosen to be his first treatment target. His

performance on heavy objects was rated as the next lowest and was chosen as the second safety training treatment target. After Clinton completed his safety skill training on the aforementioned hazards and after a 4-week break, probe assessments began with his sister.

Around the time Kylie's probe assessments began, there was a domestic violence incident in which Reggie pushed Tonya into a glass table causing it to shatter. Tonya expressed concerns regarding her children's ability to remain safe from sharp objects as she kept finding shards of glass throughout the room after thoroughly cleaning. Additionally, she reported that despite her warnings, the children kept entering the room where the glass table broke. Tonya's concerns led to sharp objects being the first treatment target for Kylie. Safety training relevant to electrical hazards was chosen as the second treatment target as Kylie's baseline performance on this skill was rated as the lowest.

Teaching Clinton and Kylie how to identify home safety hazards as well as engage in behaviors to reduce and/or eliminate identified home safety hazards was conceptualized to reduce safety risks of all children in the home. Additionally, it was thought that Clinton and Kylie's increased knowledge and skill level would generalize to other individuals living in the home. This conceptualization was especially important for this family because of Dana's increased risk level. It was hypothesized that following training role-play performance would improve on each of the targeted hazards. Training on each safety skill was successive and cumulative. Safety skills training included having the children demonstrate their newly learned skills to their family and having the family participate in a weekly homework activity that included reducing the targeted home



hazard. These two components were intended to increase the amount of positive attention directed towards the children and increase family commitment and participation in reducing identified home hazards. As a result, it was hypothesized that there would be an increase in parental satisfaction regarding the ability of her children to keep themselves safe from home hazards. Since the presence of multiple home hazards is one form of child physical neglect, the decrease in home hazards was incompatible with such neglect.

## CHAPTER 4

### RESULTS

#### **Pre-Treatment Assessment Results**

Table 1 depicts the results from the Home Safety and Beautification Checklist at pre- and post-treatment as well as the 4 months after treatment completion (4-month follow-up). The pre-treatment assessment was conducted at Clinton and Kylie's residence, and required approximately 4 hours to complete. The Home Safety and Beautification Checklist identified a total of 6 hazards (i.e., 4 toxins, 2 electrical) that were rated as either a Moderate or High Treatment Priority.

Tonya reported her satisfaction with Clinton's safety skills using the Parent Satisfaction with Child Scale. At pre-treatment, she reported being 60% satisfied with Clinton's ability to keep safe from home hazards.

Figure 1 depicts the results of Clinton's role-play performance for electrical and heavy object hazards during five probe assessments and one 7-week follow-up probe assessment. Figure 1 also depicts the results of Kylie's role-play performance for sharp objects and electrical hazards during four probe assessments.

#### **Participatory Assessment**

Generally, 90 minute weekly sessions were scheduled with the family in their residence. During the course of 6 months, the family attended a total of 20 sessions. Perfect attendance was maintained during the first 10 weeks of treatment. Tonya rescheduled a total of five treatment sessions for excusable reasons (e.g., court attendance, death in family, domestic violence incidents). Tonya and her children received two consecutive treatment sessions at a local hotel where they were residing due

to a domestic violence incident. Tonya's husband attended a total of seven treatment sessions. The longest interval of time between sessions was 2 weeks.

Clinton completed four safety skill training sessions, with each training session lasting approximately 60 minutes. Clinton's motivation and participation during his training sessions was variable ranging from active participation to little participation with easy distractibility. Clinton's homework compliance was low as evidenced by only two out of the five (40%) homework assignments being completed. Kylie attended all of Clinton's training sessions and actively participated during all of the sessions. During Clinton's training, Kylie was reinforced for appropriate responses, but she did not participate in any role-plays.

Kylie completed three safety skill training sessions, with each training session lasting approximately 60 minutes. Kylie actively participated during all of her training sessions. However, her homework compliance was extremely poor as evidenced by neither of the homework assignments being completed. Clinton attended all of Kylie's training sessions and his participation was variable. During Kylie's training, Clinton was reinforced for appropriate responses, but he did not participate in any role-plays. Dana was present during all of the child safety skill training sessions.

## **Evaluation of Study 1**

### **Phase 1: Baseline/Non-Educational and Directive Activity (Study Week 1)**

Clinton's treatment began with one session of participating in a coloring activity along with the child therapist and his two sisters. During this activity, Clinton discussed activities he enjoyed, school, and his family. Clinton was provided positive attention. During the activity, the therapist did *not* provide advice or suggestions relevant to change

in behavior. Rather, the therapist style was focused on establishing rapport and providing positive attention. During the coloring activity and the probe sessions, Clinton actively participated and appeared to put forth his best effort.

**Phase 1: Probe assessment results (weeks 1 & 2).** Figure 1 provides results from Clinton's role performance on electrical outlets and heavy objects. As expected, Clinton's performance on electrical outlets remained consistent in weeks 1 and 2. His skill level was rated as a "0" or "very unlikely to keep children in the home safe." One of Clinton's role-play responses included telling his mother, "woman you better fix this." Clinton's role play performance on the heavy objects hazard was rated as a 0 during week 1. In week 2, his role-play performance slightly improved to a rating of 1. This result was not expected because safety skill training on heavy objects had not been introduced at this time. In addition to his role-play performance, Clinton was asked to provide verbal solutions to the hazards. Although these responses were not considered when scoring his separate role-play response, several of his responses were notable. For example, during weeks 1 and 2 some of his verbal responses on heavy objects included "throw [the heavy object] at my sisters and outside," "hit someone [with the heavy object]," and "lift [the heavy object] up."

### **Phase 2: Electrical Outlet Safety Skill Training (Study Week 2)**

Immediately following the probe assessment during week 2, one session of safety skill training on electrical outlets was conducted. Thus, training on electrical outlets was performed after two probe assessments (week 1 and 2) and one session of a non-educational and non-directive activity (week 1).

Clinton and his sisters actively participated in the electrical outlet safety training. The training consisted of the children participating in an interactive, but standardized story protocol. Following the story, Clinton was instructed to identify any electrical hazards in his room. He was able to identify several hazards including uncovered electrical outlets and exposed cords and wires to his television and video game unit. Clinton role-played solutions including telling an adult about the hazard and offering solutions to the adult including placing outlet covers in exposed outlets, using electrical tape to bind up wires, and moving furniture to cover the outlets or wires. Clinton demonstrated some difficulties maintaining attention during the session, but he was continually praised for his attention and effort. After the role-plays, Clinton demonstrated his newly learned skills to his family and he received high amounts of praise from both his mother and his father. The family was provided appropriate safety equipment for electrical hazards (e.g., outlet covers, electrical tape) and they were assigned homework to identify and eliminate additional electrical outlet hazards throughout the house.

**Phase 2: Probe assessment results (week 3).** At the start of the third session, Clinton participated in a post electrical and a baseline heavy object safety skill training assessment. His effort and motivation was minimal during the probe assessments. While it was expected that his role-play performance on electrical outlets would improve, his performance remained consistent with his baseline. His performance on the heavy objects safety skill showed a slight decrease from week 2, but was consistent with his performance during week 1.

### **Phase 3: Electrical Outlet and Heavy Object Safety Skill Training (Study Weeks 3, 4, 5, & 12)**

Following the probe assessment during week 3, Clinton's homework assignment on identifying and remedying electrical outlet hazards was reviewed. The remainder of the third session followed the previous training format, but was devoted to safety skill training for heavy objects. At the start of study weeks 4 and 5, the probe assessments were conducted and Clinton actively participated in these assessments. Treatment during these sessions focused on modeling and role-playing safety skills relevant to electrical outlets and heavy objects. A follow-up assessment was conducted 7 weeks following Clinton's safety skill training (week 12). Clinton actively participated during this assessment.

**Phase 3: Probe assessment results (week 4, 5, &12).** As expected, results of Clinton's role-play performances on both post electrical outlet and heavy object safety training indicated improvements from baseline (see Figure 1). During study week 4, Clinton's scores on electrical outlets increased from the lowest score to the highest score of "4," or "very likely to keep children in the home safe." During the fifth session, Clinton's performance showed a slight decrease from the previous session. However, his performance still improved from baseline. On heavy objects, Clinton's performance slightly improved from baseline to a rating of "3." At the 7-week follow-up, Clinton's performance on electrical outlets showed a slight increase and was consistent with his performance during week 4. Clinton's performance on heavy objects remained consistent. Clinton's scores were mostly consistent with the hypothesized findings for this phase of the study. Examples of Clinton's role-play responses following treatment included "can

we put covers on [the electrical outlets] so no one hurts themselves, please?” and “mom there is a heavy t.v., can you lift it for me, please?”

## **Evaluation of Study 2**

### **Phase 1: Baseline/Non-Educational and Directive Activity (Study Week 9)**

During study weeks 6 through 9, safety skills were not reviewed or discussed with the children. Kylie’s treatment began with one session of participating in a coloring activity with the clinician and her siblings. During this activity, Kylie discussed activities she enjoyed, school, and her family. She was provided positive attention. During the activity, the therapist did *not* provide advice or suggestions relevant to change in behavior. Rather, the therapist style was focused on maintaining rapport and providing positive attention. During the coloring activity and the probe sessions conducted at weeks 9 and 10, Kylie actively participated and appeared to put forth her best effort.

**Phase 1: Probe assessment results (weeks 9 & 10).** Figure 1 provides results from Kylie’s role performance on sharp objects and electrical outlets. Kylie’s performance on sharp objects unexpectedly showed an improvement from week 9 to 10. This result was not expected because safety skill training on sharp objects had not been introduced at this time. At week 9 Kylie’s role-play responses to sharp objects indicated that she could identify the presence of the hazard. During week 10, she identified the hazard and provided one solution. As expected, her performance on electrical outlets remained consistent in weeks 9 and 10.

### **Phase 2: Sharp Objects Safety Skill Training (Study Week 10)**

Immediately following the probe assessment during week 10, one session of safety skill training on sharp objects was conducted. Thus, training on sharp objects was

performed after two probe assessments (week 9 and 10) and one session of a non-educational and non-directive activity (week 9).

Kylie and her siblings actively participated in the sharp objects safety training. The training followed the same standardized protocol as Clinton's training. Immediately after the story, Kylie was able to identify several sharp hazards in her room. She was also able to provide several solutions to remedy the hazards and the negative consequences of being harmed by the sharp objects. During the skill demonstration to family members, Kylie's behavior appeared reserved and timid as evidenced by a soft voice tone and inconsistent eye contact. She appeared to respond well to positive reinforcement as evidenced by increased eye contact and a pleasant affect (e.g., smiling, laughing).

**Phase 2: Probe assessment results (week 11).** Although it was expected that Kylie's role-play performance on sharp objects would improve, her performance remained consistent with her score from the previous week. Also unexpected was her slight improvement on the electrical outlet role-play.

### **Phase 3: Sharp Objects and Electrical Outlet Safety Skill Training (Study Weeks 11 & 12)**

At the start of study weeks 11 and 12, the probe assessments were conducted and Kylie actively participated. Treatment during these sessions focused on modeling and role-playing safety skills relevant to both sharp objects and electrical outlets. After Kylie demonstrated her skills to the family on the 12<sup>th</sup> session, Tonya indicated astonishment with Kylie's increased abilities. Tonya believed that Kylie's self-confidence had improved. Tonya indicated that Kylie was typically very reluctant to speak in front of multiple individuals.



**Phase 3: Probe assessment results (week 12).** Kylie’s role-play performance on sharp objects remained consistent from baseline. However, her performance on electrical outlets demonstrated significant improvement from baseline. Although her performance on sharp objects remained stable, her performance on electrical outlets was consistent with the hypothesized findings for this phase of the study. Kylie’s role-play responses following treatment included “mom there is an unplugged outlet. Can we have covers or push the couch over them?” and “mom there is a sharp object on the floor. Can you pick it up please?”

### **Comprehensive Adult-Focused FBT Interventions**

Following the conclusion of Kylie’s safety training, the adult-focused FBT interventions continued and the family was provided with the Child Management and Home Safety and Beautification Intervention. During this time, no child safety skill training or assessments were conducted. After eight sessions, Tonya was administered the comprehensive post-treatment assessment battery.

### **Post-Treatment Assessment Results**

The post-treatment assessment was conducted one week following completion of comprehensive FBT and took approximately 3 hours to complete. Although the children’s safety skills were not assessed at post-treatment, the results from the relevant post-treatment measures were generally positive.

The number of hazards identified as either a Moderate or High Treatment Priority by the Home Safety and Beautification Checklist decreased from 6 at pre-treatment to 1 at post-treatment (see Table 1). At post-treatment Tonya reported being 90% satisfied with

Clinton's ability to keep himself safe from home hazards. This was a 30% improvement from her pre-treatment report.

### **Follow-up Assessment Results**

Tonya spontaneously called the treatment facility approximately 3-months after her post-treatment assessment to inform the clinicians that her court case relevant to her referral to FBT was closed. Tonya indicated that the judge was pleased with her success in the treatment program and praised her ability to maintain a safe and healthy home environment for her family. Tonya reported being very satisfied with her life and engaging in many family activities (i.e., attending football games). Her communication with her husband had improved, albeit more improvement was still needed. She had been practicing and utilizing the communication techniques learned in session and had learned how to prevent herself from becoming stressed and agitated by engaging in healthy activities. She was looking forward to accomplishing her future goals including seeking outside support groups. Importantly, she indicated that her children were continuing to use the safety skills learned throughout treatment.

Approximately one month later a formal 4-month follow-up assessment was conducted and took approximately two and a half hours to complete. The number of hazards identified by the HSBC as a Moderate or High Treatment Priority remained at 1 (see Table 1) and on the PSCS Tonya continued to be 90% satisfied with Clinton's ability to keep himself safe from home hazards. The results from the HSBC and the PSCS were identical to results found at post-treatment, indicating that the positive effects of treatment maintained over time.

## **Complicating Factors During Treatment**

The family evaluated in the present study evidenced common difficulties experienced by families with co-occurring problems of child neglect and substance abuse. For example, this family demonstrated problems with domestic violence, financial and legal concerns, and unstable housing. Early in treatment it was apparent that Tonya required the most assistance with safety issues relevant to domestic violence. Throughout treatment there were a total of five domestic violence incidents. These incidents as well as several related factors presented numerous problems throughout treatment including delays in typical treatment protocol, disruption of treatment location and the husband's participation, confidentiality concerns, and increased stress. A substantial amount of Tonya's treatment was spent problem-solving imminent safety concerns. Several additional phone consultations were provided to Tonya to assist her in maintaining the safety of herself and her children. Additionally, the stressful home environment and the inconsistent living arrangements (e.g., stays in hotels, father being removed from home) affected the typical structure of treatment. For instance, FBT was originally designed to be conducted in the client's home with all family members participating. However, court rulings and safety concerns required two FBT sessions to be conducted at a location (i.e., hotel) undisclosed to Reggie. Taken together these issues further elevated stress levels for the entire family.

At the onset of treatment, Reggie, attended treatment sessions and participated in Clinton's safety training. However, as treatment progressed his motivation and willingness to participate decreased and appeared to be related to several complicating factors (e.g., clinicians' inability to provide information to him about Tonya's location

after domestic violence incidents, his belief that the FBT program was encouraging separation of the couple, no court mandate for his participation in FBT sessions). Despite clinicians' efforts to resolve these issues, Reggie ultimately decided to discontinue participation after seven FBT treatment sessions. However, he remained living with his family throughout most of treatment.

At the onset of treatment Tonya demonstrated a high level of motivation and commitment as evidenced by her consistent attendance and active participation. As Clinton's safety skill training progressed Tonya appeared motivated to assist him as evidenced by her self-report and her assistance with Clinton's practice assignments (e.g., remedying identified home safety hazards). However, approximately 1 month into treatment the family environment became increasingly chaotic. Tonya had a drug relapse followed by several incidents of domestic violence. The increased amounts of stress appeared to affect Clinton and Tonya's motivation as evidenced by decreased homework compliance and participation in the safety training. It is possible that the increased amount of stress in the home and low parental participation may have prevented Clinton from increasing his safety skills as much as was hypothesized. Once the family environment stabilized, Kylie's safety skill training began. However, her treatment was prematurely discontinued following a severe incident of domestic violence that resulted in the mother and children secretly residing in a local hotel for approximately 2 weeks. After much discussion, the clinical and research team determined that both clinicians were required to assist Tonya with imminent problems related to physical safety, finances, legal issues (e.g., restraining orders), housing, suicidality, marital

dissatisfaction, and substance use urges. Towards the latter part of treatment, the parents reconciled and the family all resided in the same household.

Clinton's motivation and attention during his safety skill training was variable. In addition to the previously mentioned stressors, it is possible that his diagnosis of Attention-Deficit Hyperactivity Disorder (ADHD) contributed to his distractibility and decreased effort. To accommodate his needs, slight modifications were made to the child training program. During the first two probe assessments, Clinton's skills on approximately five common hazards were assessed. These lengthy assessments appeared to result in low motivation and fatigue. To avoid fatigue, it was determined that initial assessment items would only include hazards identified by the Home Safety and Beautification Checklist (HSBC) at pre-treatment and any additional hazards identified by clinicians. The order in which the skills were introduced would be determined by HSBC treatment priority rating, clinician judgment, and the child's initial skill performance. Even with these modifications, Clinton's motivation to participate fluctuated. His motivation was particularly low during the third assessment probe session. Shortly before the start of the session, Clinton had been placed on restriction by his parents due to a disciplinary referral from his school that day. Additionally, the families' DFS caseworker unexpectedly attended the session to do a home tour and observe the family and the treatment program. It appeared as though these factors negatively affected Clinton's performance as he provided no verbal solutions to the safety hazards (e.g., continually stating "nothing") and responded with "I don't know," to all of the role-plays prompts. As a result modifications to the protocol were made prior to the fourth probe assessment. The modifications included providing child compliance scores and

corresponding compliance stickers (i.e., 3 = outstanding, 2 = good, 1 = try harder next time) for appropriate effort and attention during the session, providing feedback to the parents regarding the children's compliance scores, and rewarding compliance scores of 2 or above with small token items from a "child reward bag."

Kylie's motivation and effort consistently appeared appropriate. However, she appeared to demonstrate difficulties understanding the appropriate responses required during the probe assessments. During the probe assessments she would often respond with a lower rating response. However, in the training phases (immediately following the assessments), without prompting, she would often indicate a higher rating response. Although Kylie was never formally diagnosed with a developmental disability, she was exposed to multiple risk factors known to influence development including genetic and prenatal factors (e.g., premature birth, sibling with a developmental disability, increased stress during gestation, potential exposure to substances) and environmental stressors (e.g., domestic violence). It is possible that Kylie's developmental age was lower than her chronological age and this negatively affected her performance. Following the discontinuation of Kylie's safety skill training, the SSAF-C assessment measure underwent several revisions to accommodate lower developmental levels (see Study Limitations and Future Directions). During Kylie's training treatment planning modifications were also made to the safety skill training. Tonya's reported concern regarding her children's ability to remain safe from sharp objects led to an additional step of asking for parental input regarding specific safety skills to be taught to the children. The parent's responses would be the first treatment target followed by the already established criteria (e.g., HSBC treatment priority rating, clinician judgment, etc.).

## CHAPTER 5

### DISCUSSION

Within Family Behavior Therapy (FBT) for mothers founded for child neglect and abuse of substances, a child-focused safety skill treatment was developed and initially evaluated utilizing controlled single case methodology. Multiple baseline methodology was an ideal design for this examination because treatment needs could be prioritized, thus assisting in the safety of participants (i.e., target the child most in need of safety skills, target identified hazards in the home, target lowest rated skill first).

In study 1, an initial baseline was established for skills relevant to electrical hazards and heavy objects. These behaviors were then monitored during treatment using probe assessments and the maintenance of these skills was assessed approximately 7-weeks post-treatment. In study 2, an initial baseline was established for sharp objects and electrical hazards. These behaviors were then monitored during treatment using probe assessments. The results of the two studies were expected to demonstrate the effectiveness of three home safety skill training modules. Specifically, it was hypothesized that the implementation of safety skills training would significantly increase 1) behavioral role-play assessment scores for children specific to home hazard problem scenarios (i.e., electrical hazards, heavy objects, sharp objects) and 2) parental satisfaction scores with the child's ability to keep safe from home hazards.

#### **Summary of Findings**

As hypothesized, training in electrical outlets in study 1 improved safety skills. Following one and a half training sessions, improvements were demonstrated in role-play performance. Additionally, this improvement was maintained at a 7-week follow-up

probe assessment. The training on both electrical outlets and heavy objects improved safety skill performance for hazards potentially resulting from heavy objects after training and at a 7-week follow-up. However, the magnitude of the effect was rather minimal. An overall qualitative examination of verbal and role-play responses revealed that prior to treatment Clinton tended to provide aggressive role-play responses (e.g., throwing and hitting family members with heavy objects, demanding that his mother fix home hazards). However, throughout the course of treatment, Clinton was able to orally provide and behaviorally role-play more appropriate skills relevant to decreasing home hazards (e.g., politely asking family members to move heavy objects, suggesting adults cover exposed electrical outlets with covers, indicating the risks of home hazards to adults).

Results from study 2 did not support the hypothesis that safety training on sharp objects alone or sharp objects and electrical outlets would result in skill improvements on sharp objects. Throughout the study, Kylie's skills on sharp objects remained consistent with baseline performance. However, significant skill improvements on electrical outlets were found when both sharp objects and electrical outlet training was conducted. Following a 30-minute training session, results from the assessment probe resulted in a significant improvement in Kylie's role-play performance on electrical hazards. Additional assessment probes relevant to the maintenance of skills were unable to be performed because the clinical and research team determined that both clinicians were required to assist Tonya with imminent problems related to physical safety, legal issues, housing, suicidality, marital dissatisfaction, and substance use urges.



An overall qualitative examination of Kylie's responses and behavior revealed that prior to treatment she was able to identify hazards by verbalizing their presence. However, she demonstrated difficulties providing solutions for the amelioration of the hazards and her behavior appeared timid as evidenced by a soft voice and shifting eye contact. Over the course of treatment, Kylie was able to orally provide, and behaviorally role-play, more appropriate skills relevant to decreasing home hazards (e.g., politely asking family members to assist with identified hazards, providing several solutions for identified hazards). Prior to skills training Tonya reported that Kylie was "very shy and quiet." Following skills training, Tonya reported being "amazed" with Kylie's ability to comfortably speak in the presence of multiple individuals.

As hypothesized, parental satisfaction significantly improved. Prior to safety skill training, Clinton's mother reported being 60% satisfied with his ability to keep himself safe from home hazards. Immediately following comprehensive FBT and 4-months after FBT treatment completion she reported being 90% satisfied. In addition to the hypothesized outcomes, the number of home hazards identified as a Moderate and High Treatment Priority significantly decreased at treatment completion and 4-months following treatment completion.

In summary the present study evaluated a newly developed child-focused home safety skills training program. The child-focused treatment was incorporated into Family Behavior Therapy (FBT), an in-home parent-focused treatment program for child neglect and maternal substance abuse. Results demonstrated the efficacy of electrical hazard training and the modest efficacy of heavy object safety training. These findings are consistent with other studies that have found positive results in teaching similar children

general safety skills (Gast et al., 1993; Johnson et al., 2005; Miltenberger et al., 2004; Watson et al., 1992; Wurtele et al., 1991). Following completion of comprehensive FBT, maternal satisfaction with the child's safety skills (participant 1) significantly improved and the number of home hazards markedly decreased. Importantly, these effects were maintained at a 4-month follow-up assessment. These findings are consistent with other studies that have found positive satisfaction and home safety results in comprehensive treatment approaches for use in similar difficult populations (Barone, Greene, & Lutzker, 1986; Gershater-Molko, Lutzker, & Wesch, 2003; Lutzker, Campbell, & Watson-Perczel, 1984; Metchikian et al., 1999).

Overall the results modestly support the conclusion that a child-focused safety skill training as part of a parental treatment program for child neglect and maternal substance abuse is a promising addition. The child-focused safety training appeared to lead to an increase in selected home safety skills. These improvements were seen subsequent to only a few treatment sessions and were maintained at a 7-week follow-up. Inter-rater reliability estimates from the modified version of the assessment measure were acceptable and consistent with estimates provided in similar studies (see Mori & Peterson, 1986; Peterson, 1984b). Of great importance, this is the first controlled evaluation of a home safety skill training program in confirmed child victims of neglect.

### **Study Limitations and Future Directions**

To make statements about a cause and effect relationship, the experimenter must have experimental control. Control occurs when a cause and effect relationship between the independent variable and the dependent variable is established and other possible explanations for the finding have been ruled out (Christ, 2007). Internal validity is the

extent to which the design of the study eliminated bias. This allows the researcher to draw a casual inference between the treatment and outcome (Mulder, Frampton, Joyce, & Porter, 2003). It is important to note that when conducting research on treatment outcomes, attempts to enhance internal validity can reduce the external validity of the treatment. External validity refers to the extent to which the results can be generalized to other circumstances, populations, and settings (Cook & Rumrill, 2005). Multiple baseline methodology is designed to assess and rule out the influence of extraneous variables and increase internal validity. The researchers made substantial efforts to increase the internal validity of the present study. However, extraneous variables may have affected study results. For instance, in a multiple baseline design, experimental control is demonstrated when the data show improvement in the targeted skill relative to its baseline, while the untargeted skill concurrently does not improve relative to its baseline. In the case of Clinton, electrical outlets were implemented in week two and thus he was expected to demonstrate improvements in the 3<sup>rd</sup> probe session while his performance in managing heavy objects was not expected to improve during this probe because heavy objects was not targeted during week two. The results, however, indicated no improvements in skill performance for either skill set. Thus, control was not demonstrated in this study. It is important to mention, however, that immediately prior to the 3<sup>rd</sup> probe session Clinton was initially told not to participate in the safety skill intervention prior to his mother telling him he could do so. This certainly could have influenced him not to participate in the probe session. Of course, improvements were noted to occur in both skill sets one week later after electrical hazards was targeted again, and heavy objects was targeted for the first time. This suggests the safety skill interventions may be effective. Unfortunately,

as mentioned above, these assumptions are not supported with experimental control, obfuscating the interpretation of results.

Thus, history can be a problem with any study, although the multiple baseline design allows the experimenter chances to detect these effects, as indicated above (Christ, 2007). There were other extra-treatment factors that may have influenced the results of this study. Indeed, throughout both studies, there were increased amounts of stress primarily relevant to parental domestic violence. The stressful home environment and the inconsistent living arrangements affected the typical structure of treatment. The increased amounts of stress and the differences in parental involvement in each of the cases may have negatively affected the children's learning and motivation. Although the adult clinician was able to implement all adult-focused FBT protocols successfully without any significant modifications, the therapist was unable to review the protocols in as much depth as would be desired. Therefore, this case provided support to consider excluding families whose primary reason for referral was related to domestic violence rather than substance abuse and child neglect.

An unexpected ascending baseline was found for both safety skills in study 2. Although the improvements were slight (one rating score), interpretation of study findings is again obfuscated to some extent because the apparent improvements occurred prior to intervention. Although doubtful, it is possible that this change was due to maturation. Maturation is change in a participant's behavior that is not the result of the manipulation in the experiment, but rather due to factors associated with the passage of time. However, the short period of time in the present study was unlikely to produce significant developmental effects.

Both studies were conducted to determine the effects of safety skill training. For study 1, the results appear to indicate that training on two hazards can lead to significant skill increases in one of the hazards (i.e., electrical outlets) and slight increases in heavy objects. However, the complicating factors that occurred prior to the third assessment probe in study 1 (e.g., ambiguity of mother in permitting child to participate in the study, child being punished for a school disciplinary referral, caseworker unexpectedly attending the session) limit this interpretation. It is possible that these complicating factors lowered the performance scores in study 1. However, it is also possible that previous training on electrical outlets did not produce the hypothesized results. Future investigations should test these hypotheses. Interpretations from study 2 are also limited by participant two's observation of safety training during study 1. Although role-plays were not performed with participant 2 during study 1, participant 2 observed the safety training and received reinforcement for appropriate responses. To control for this, a break was taken between study 1 and study 2. However, the ascending baselines, particularly on electrical outlets, may suggest that participant 2 gained some knowledge and skills during observation of participant 1's training, although the demonstration of this knowledge during the baseline period appeared to be delayed (if knowledge had, indeed, occurred). This is important because it indicates that children may benefit from observing safety training even if they are not the target participant. Future evaluations should examine if observations of another's training by itself can lead to skill improvements. Since the current study only evaluated three home hazards, future investigators should also evaluate the effectiveness of additional home hazards. These controlled evaluations would provide additional information regarding the benefits of training on additional home hazards.

This study provided preliminary support for the effectiveness of a safety program with a sibling set that included a child with a learning disorder (e.g., ADHD) and a younger child (e.g., 4 years). Generalizability of study findings is limited by the participants being from the same family. Future investigations should evaluate home safety skill training with children from different families. This would provide information regarding the ability to apply this treatment program to a more general population. It is possible that children from the general population may show more benefits from safety skills training than child victims of neglect. Along these lines, it is important to point out that the current study participants' demographic information and histories were consistent with families of substance abuse and neglect. For example, neglected children demonstrate high rates of Attention-Deficit Hyperactivity Disorder (ADHD) (Famularo, Kinscherff, & Fenton, 1992). Additionally, factors such as premature birth, having a low birth weight, and developmental and physical disabilities also increase a child's risk of being neglected (Erickson & Egeland, 2002; Sidebotham & Heron, 2006). The generalizability of the results was also increased by the children's varying ages and ability to maintain attention. However, to accurately determine the generalizability and benefits of the program, a more diverse representation of children are needed in future studies.

Assessments can be problematic when utilizing a multiple baseline design. However, if sufficient data is collected, the researcher can determine if outcome effects have occurred as hypothesized. In this study, standardized assessment probes were conducted immediately prior to each treatment session every time. The clinicians and the blind assessors were trained to administer the assessment measures in a neutral, non-emotional,

manner, and provided the same rationale and instructions for each assessment. To standardize instrumentation, the same clinician and blind assessor completed all assessment probes with each child. The multiple probe design also improved the assessment of internal validity by selectively probing for data at critical points in the study (Christ, 2007).

Although assessment administration was standardized, it is possible that the children did not understand the nature of the role-play assessment. In study 2, the participant's motivation and participation appeared appropriate, however, it appeared as though she had difficulties understanding the appropriate responses required during the probe assessments. For example, during the probe assessments she would often respond with a lower rating response. However, in the training phases (immediately following the assessments), without prompting, she would often indicate a higher rating response. Appropriate assessment of children should always consider and make modifications for chronological and developmental age. During the uncontrolled trials, several modifications were made to the assessment tool to attempt to make it appropriate for use in children as young as 4-years and anecdotal evidence supported its use. However, children's abilities, particularly younger children and children of neglect, are highly variable. As discussed in the literature review above, neglected and maltreated children evidence significant delays that impact a wide variety of their abilities. For example, neglected children evidence the most severe deficits in language abilities when compared to other maltreated children (Culp et al., 1991b; Katz, 1992). Additionally, the physical condition of a maltreated child's home has been found to predict cognitive performance and competence (Vondra, Barnett, & Cicchetti, 1990) and children from hazardous and

chaotic homes have significantly lower receptive language scores than comparison children (Harrington et al., 1995). Maltreated children also tend to lack social, problem solving, and conflict resolution skills (Fantuzzo et al., 1998). Taken together, these findings make accurate assessment of neglected children's abilities difficult to assess, particularly with younger children. However, the most consistent risk factor for child neglect and injury as a result of home hazards is age, with younger children being at the greatest risk (Marovich & Wilson, 1999; Nagaraja et al., 2005). Higher rates of physical neglect rates among young children most likely relates to amount of time spent in the home and their inability to recognize and defend themselves from hazards. Thus, younger children should be the target participants for home safety skill interventions. Taken together, these factors create a significant dilemma for treatment outcome researchers as treatment needs to be directed towards the younger children, but the accurate assessment of younger children is difficult. In the present study, the researchers attempted to tackle this issue by targeting and assessing both children. The researchers also attempted to increase the developmental appropriateness of the measure by including verbal definitions of the safety hazards and providing opportunities for children to verbalize and behaviorally demonstrate their abilities. However, results from the current study suggested that further modifications were needed. Thus, modifications to the assessment measure were made and evaluated in a subsequent unpublished study. These modifications included showing pictures of each safety hazard and showing pictures of a child engaging in a behavior with the hazard that may or may not be hazardous (e.g., child reaching for sharp or heavy objects, child holding a metal object close to an uncovered electrical outlet). This assessment measure was utilized in a similar multiple



baseline examination (e.g., multiple baseline across safety skills) with a similar sibling set (e.g., ethnicity, ages, reason for referral). This study also included the administration of an abbreviated version Home Safety and Beautification Checklist (e.g., only assessing hazards that were being taught to the children) during every probe sessions. Results from this unpublished study indicated that the modified assessment measure appeared to obscure the children's responses to a greater degree than the version used in the present study as no improvements were found for either child throughout the 10-weeks of safety training. Interestingly, these children responded similarly to Kylie in that they would often respond with lower rating responses during the probe assessments. However, immediately following the assessments, without prompting, they would often indicate a higher rating response. Home hazards did not decrease as a result of safety training as measured by the HSBC each probe session. However, consistent with the difficulties of this population, the family evidenced poor motivation and declined further study and FBT participation after 10-weeks of treatment. It is possible that by conducting the safety skills training without the parents, the parents may have felt disenfranchised from the treatment. Future investigations of safety skills training in children of substance addicted parents might derive benefits from parental inclusion, such as inviting parents to be safety skill models. Thus, further assessment and treatment development research in this area is desperately needed. Recommendations for future investigators include assessing a child's receptive and expressive abilities prior to training, performing criterion-based training trials prior to formal study assessments, and conducting controlled training trials on the assessment method.

The method of scoring results from the assessment measure may have also affected study results. A qualitative examination of both children's performance scores indicated improvements. For example, during one baseline probe assessment Clinton responded with "woman, you better fix this," and during a post-training probe he stated, "can we put covers on [the electrical outlets] so no one hurts themselves, please?" As demonstrated in the example, there were great improvements in Clinton's skills as he was less confrontational. Although the children's verbal solutions were not scored, a qualitative examination indicated a greater number of verbal solutions. In both studies, the measure order included doing the role-play first and then asking the child to provide additional verbal solutions. It was originally designed this way so that the additional verbal solutions would not bias the rater's scoring of the role-play. The experimenters later determined that it would be more consistent with the problem-solving approach used in the safety training (e.g., think of all solutions, pick a solution, implement the solution) to administer the verbal assessment first and then the role-play assessment. Future investigators should consider administering the verbal solutions first followed by the role-play assessment and determine the most appropriate way to score each of these skills. In the present study, four role-playing rating criteria were established to be consistent with the safety training the children received. These factors could be verbal or behavioral and included 1) identification of the presence of a hazard, 2) report of the negative consequences of the hazard, 3) suggestion of solutions to remedy the hazard, and 4) persistence to remedy the hazard after the second neutral role-play prompt (e.g., "I'm busy," or "I have to go now. "). A qualitative examination of the participant's role-play ratings appeared to indicate that their scores were oftentimes lowered because of a

lack of persistence. However, the children both reported and role-played several feasible solutions that were not given extra weight in the role-play rating. It would likely be beneficial to develop additional scoring methods in the future. For example, the best way to measure safety skill performance may be to create a total number of criteria and determine the performance score from the number of correctly performed criteria by the total number of possible criteria. A more detailed examination of qualitative research around the effectiveness of child-focused safety skills training in victims of neglect may be warranted. Currently there is a paucity of qualitative research around the effectiveness of child abuse and neglect interventions (O'Reilly, Wilkes, Luck, & Jackson, 2010), particularly Cognitive Behavioral Treatments (Dufour & Chamberland, 2004). Furthermore, it is recognized that experimental insight from qualitative research into the efficacy of family-focused interventions by child welfare treatment recipients (children, parents, adult significant others), would provide important information for child protective services (Dufour & Chamberland, 2004; Fernandez, 2004).

Overall, the present study appears to be in line with the current direction of the child maltreatment intervention field. Recent literature indicates that a comprehensive family-based approach with the option of child-focused interventions should be prioritized (Carr, 2009), and more research on the outcome measures of children receiving these interventions should be conducted (O'Reilly, Wilkes, Luck, & Jackson, 2010). Child-focused treatments aimed at enhancing safety skills is needed (Corcoran, 2000; DePanfilis, 2006; Thomlison, 2003) and particularly in child victims of neglect. Thus, information provided from the present study should be utilized to inform researchers

committed to the development and evaluation of interventions as well as practitioners  
dedicated to the implementation of treatments in child welfare populations.

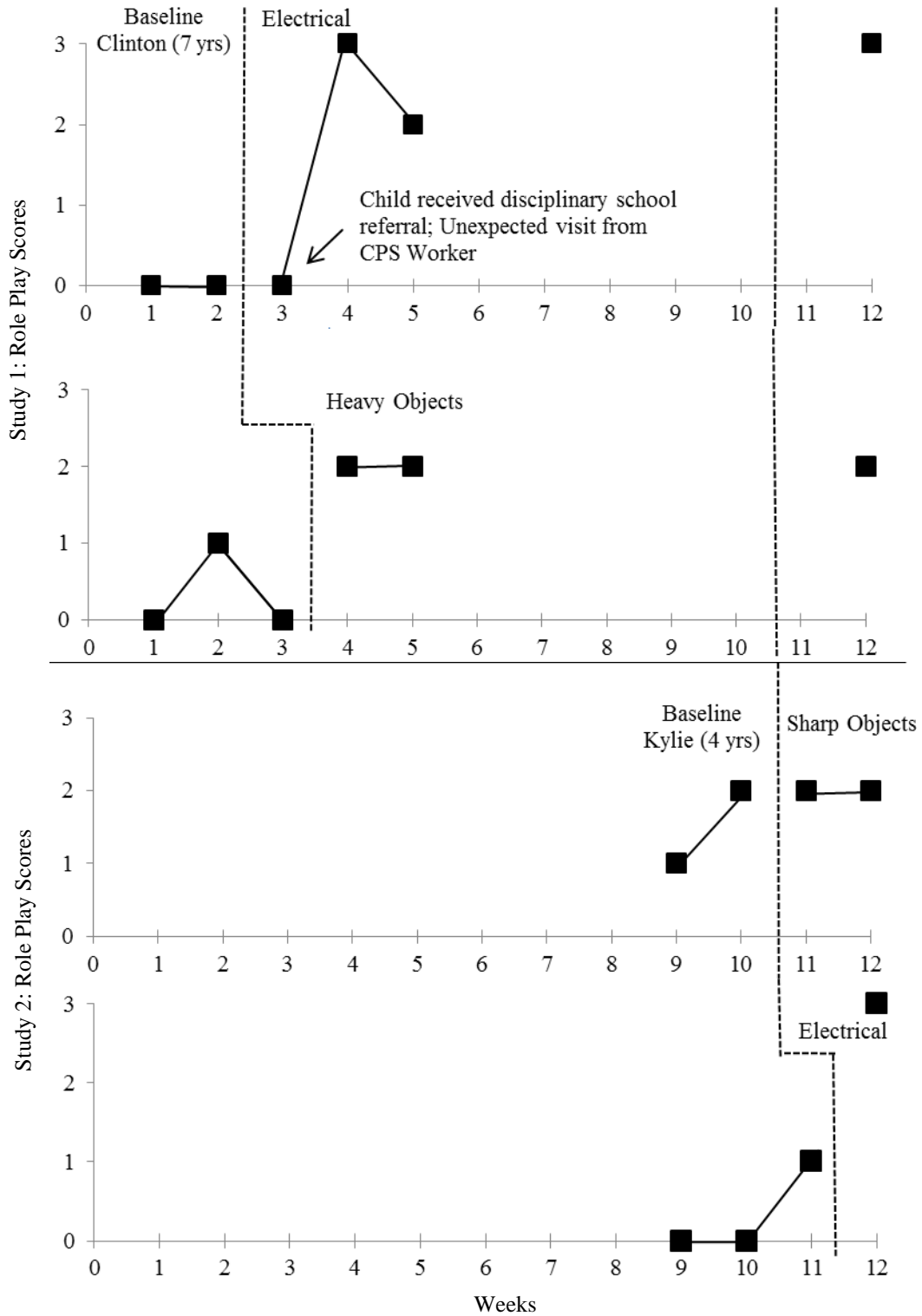


Figure 1. Multiple baseline examination of Clinton and Kylie's role-play safety skill performance

Note: Role-play performance is scored on a behavioral rating scale relevant to keeping children safe (0 = Very unlikely-, 1 = Somewhat unlikely-, 2 = Somewhat likely-, 3 = Very likely-).

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Table 1

*Number of Hazards In the Home Identified as a Moderate and High Treatment Priority by the Home Safety and Beautification Scale During Pre- and Post-Treatment and 4-Month FU*

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Identified Hazard	<u>Time Assessed</u>		
	Pre-Treatment	Post-Treatment	4-Month FU
Toxins	4	1	1
Electrical	2	0	0

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