EVALUATION OF SKILL MAINTENANCE, PERFORMANCE FACTORS, AND EXTERNAL VALIDITY IN A BEHAVIORAL PARENT TRAINING PROGRAM

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Child maltreatment affects 900 thousand children in the U.S. every year and impacts all areas of daily functioning. Behavioral parent training (BPT) programs have effectively taught parenting & demonstrated externally valid outcomes (i.e., lower recidivism rates). Skill maintenance assessments for BPTs have mixed results. The Behavior Management and Parenting Services (BMAPS) program has shown effective skill training for court-mandated families. This study assessed skill maintenance and performance factors that may have impaired parents using an ABAB single-case research design in Phase 1 and external validity with a survey in Phase 2. Results for Phase 1 found that most BMAPS parents acquired all parenting tools to criteria, dropped below criteria at the 3 month probe, then fully demonstrated their regained skills after a brief review. Psychological and classroom factors do not appear to have systematically influenced performance at any time, although homework completion was associated with better scores at the end of class. Phase 2 results found a 91% reunification rate and a 0% recidivism rate over 1-3 years. All limitations aside, it appears that the BMAPS program is able to effectively train skills to criteria and these skills can be sustained with a booster session. The vast majority of parents we contacted were reunified with their children and none were involved with additional charges of child maltreatment.

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CHAPTER 1

INTRODUCTION

Maltreatment

Definitions

Maltreatment of children is a prevalent and serious problem in the United States (Sappington, 2000; Stevenson, 1999; Tyler, Allison, and Winsler, 2006). According to the United States Department of Health and Human Services (US DHHS), more than 899,000, or 1.2%, of children in the US were victims of at least one type of child maltreatment in 2005 (US DHHS, 2007). Of those, 64.8% were neglected, 16.6% were physically abused, 9.3% were sexually abused, and 7.1% were psychologically abused. These figures do not include the 14.3% of children who were maltreated in other ways, such as those who were victims of "abandonment" (US DHHS, 2007). By comparison, in 2005, nearly 62,000, or 1.0% of Texas children were victims of at least one type of abuse. Of those, 70.7%, 23.4%, 11.9%, and 1.5% of children were determined by the Texas Department of Family and Protective Services (DFPS) as being victims of neglect, physical abuse, sexual abuse, or psychological abuse respectively (US DHHS, 2007).

Definitions of child maltreatment vary, although they share certain defining features. States commonly recognize four types of maltreatment: physical abuse, psychological abuse, sexual abuse, and neglect (US DHHS, 2009). Definitions of maltreatment vary state by state for the purposes of investigation, prosecution, and intervention (Tyler, Allison, and Winsler, 2006), although they share common features. State definitions of child maltreatment must contain the defining features set by the Keeping Children and

Families Safe Act of 2003, which defines maltreatment as any act or failure to act which either results in serious harm or the risk of serious harm (US DHHS, 2009). Recent efforts to develop specific definitions of maltreatment for epidemiological purposes resulted in two major categories of child maltreatment: acts of commission and omission (Leeb, Paulozzi, Melanson, Simon, and Arias, 2008).

Acts of commission include physical abuse, sexual abuse, and psychological abuse. Physical abuse has two defining features: intentionality and either injury or the potential for physical injury (Leeb et al., 2008). Hence, physical abuse could include anything from reckless behavior to actual bruises, burns, broken bones, or death. Definitions of sexual abuse could be loosely described in terms of sexual contact, sexual acts, or exploitation without contact (Leeb et al., 2008; US DHHS, 2006). Thus, sexual abuse includes contact with a child's genitals or genital region, sexual acts in which the child participates, or sexual exploitation of the child in pictures, etc. Psychological abuse has two defining features: intentionality and treating children as if they are worthless and/or in danger (Leeb et al., 2008). Psychological abuse may include terroristic threats, shaming, rejecting, isolating, or providing inconsistent and conflicting demands (Kairys, Johnson, and the Committee on Child Abuse and Neglect, 2002).

Acts of omission may include several types of neglect. Neglect is described as a failure to provide for the safety and health of a child (Lutzker and Bigelow, 2002). Since children have physical, emotional, educational, socialization, and protection needs to develop into healthy adults, consistent failure to provide in any of these areas may result in neglect and negative consequences (Leeb et al., 2008). Neglect may include

failure to provide adequate medical care, food, assistance with hygiene, interaction, support to attend school, supervision, opportunities to interact with other children, and safety from neighborhood or other forms of violence (US DHHS, 2009).

Negative Consequences of Maltreatment

The negative consequences of maltreatment in the US are tremendous for both society and for children. Children can be impacted by maltreatment in every area of functioning: physiological, psychological, and social. The economic costs of these impairments are equally immense.

Physiologically, maltreated children are victims of inordinately high mortality rates, as well as acute and severe medical issues, such as traumatic brain injury, damage to organs and internal tissue, or burns (Leeb et al., 2008). Chronic conditions, such as failure to thrive, somatic complaints, chronic disease, and eating disorders have also been documented (Kairys et al., 2002). Maltreated children are also more likely to engage in health risk behaviors including substance abuse, sexual risk behavior, and self-injurious behavior (Sappington, 2000; Tyler, Allison, and Winsler, 2006), which are also linked to injury and chronic health conditions, such as respiratory illness and liver damage (Leeb et al., 2008).

Deficits in psychological functioning are common among children who have experienced maltreatment. Young children who have been abused tend to evidence language delays, and, throughout childhood, youth who have been maltreated often exhibit lower IQ and low self-esteem (Lutzker and Bigelow, 2002; Stevenson, 1999). Emotionally, maltreated children are up to four times more likely to experience an

anxiety disorder, and three times more likely to experience a mood disorder (Lutzker and Bigelow, 2002). A variety of disorders, including adjustment disorders (Wolfe and Jaffe, 1991), suicidal behaviors, hostility, post-traumatic stress disorder (PTSD), dissociation, borderline personality disorder and eating disorders are more common among those who were maltreated as children (Kairys et al., 2002; Sappington, 2000).

Social deficits and problems associated with maltreatment are pervasive and range from withdrawal to violence. Immediate effects include insecure attachment, avoidance of social relationships, as well as deficits in empathy, and perspective taking. As a result, appropriate friendships and adolescent dating behaviors are delayed and/or restricted (Dishion and Patterson, 2006; Lutzker and Bigelow, 2002; Stevenson, 1999). In fact, a common tendency to initiate less and to withdraw more from social situations limits opportunities for future interaction (Tyler, Allison, and Winsler, 2006). Children raised in coercive families are more likely to develop antisocial behaviors, such as making threats, displaying physical aggression, stealing, and lying (Dishion and Patterson, 2006; Patterson, 1982; Sappington, 2000; Wolfe and Jaffe, 1991). Long-term ramifications of child maltreatment include being more likely to receive and/or inflict violence, verbal abuse, or sexual abuse in romantic relationships, as well as being more likely to abuse their own children (Sappington, 2000; Tyler, Allison, and Winsler, 2006).

Monetary costs stemming from physiological, psychological, and social deficits have increased in the past decade. The direct costs of child maltreatment are estimated at nearly $9 billion, whereas indirect costs total $47 billion (Van der Kolk, Crozier, and Hopper, 2001). Indirect costs may include long-term impairment, special education, lost productivity, medical care, and services aimed to improve quality of life, such as mental

health care (Van der Kolk, Crozier, and Hopper, 2001). More recent estimates that calculate costs based solely on monetary costs to victims are nearly double the previous estimate, based on average costs per person and incidence rates of service need among maltreated children (Wang and Holton, 2007). Of Wang and Holton's (2007) $103 billion estimate, $33 billion is from direct costs (i.e., hospitalization, mental health, child welfare services, and law enforcement) with the other $70 billion coming from indirect costs (i.e., special education, chronic medical and mental healthcare, juvenile delinquency, the adult criminal justice system, and lost productivity to society).

Families At-Risk for Maltreatment

Consistent with Bronfenbrenner's (1979) ecological model, child maltreatment develops in the context of individual, family, and social risk factors. There are multiple pathways that culminate in maltreatment, and not every parent with an individual risk factor maltreats his or her child. Yet, the presence of one or more risk factors make maltreatment more likely to occur (Emery and Laumann-Billings, 1998). Maltreating parents often demonstrate difficulties coping with emotions, which is problematic since many of these parents face high stress from a variety of sources. Relevant parental stressors may include poverty, poor social support, marital conflict, mental illness, caring for their children, and/or managing child behavior (Tyler, Allison, and Winsler, 2006; Wilson and Horner, 2005). Maltreating parents often exhibit low self-esteem, low parenting self-efficacy, and negative emotionality (e.g., depression, anxiety, anger).Such difficulties may evoke maladaptive coping strategies such as substance

use and/or impulsive actions that are risk factors for child maltreatment (Emery and Laumann-Billings, 1998; Wolfe and Wenkerle, 1993).

Maltreatment often occurs in families characterized by coercive interactions (e.g., dominance, aggression, and/or apathetic indifference), which is believed to be maintained by a variety of factors (Herschell and McNeil, 2005; Sanders, Cann, and Markie-Dadds, 2003; Lutzker and Bigelow, 2001). Psychological factors, such as inappropriate expectations of children and/or a learning history of being maltreated as a child, appears to set the stage for coercive parenting interactions (Emery and Laumann-Billings, 1998; Herschell and McNeil, 2005; Wolfe and Wenkerle, 1993). An additional factor, experiential avoidance, may also contribute. Experiential avoidance is the attempt to directly alter the form, frequency, or intensity of private experiences, such as worries, anger, or shame (Hayes, Wilson, Gifford, Follette, and Strosahl, 1996). Those who use experiential avoidance as a coping mechanism also report higher levels of psychopathology and lower levels of quality of life (Hayes et al., 2004). Hence, experiential avoidance may contribute to maltreatment (Coyne and Wilson, 2004), given that negative attributions, arousal, or anger also set the stage for maltreatment (Patterson, 1982; Sanders et al., 2004).

From a behavioral perspective, coercive parenting can be examined as operant behavior (Patterson, 1982), which means that the immediate consequences of coercive parenting contribute to a continuous pattern of coercion. After the coercive parental behavior occurs, undesirable child behavior often will stop temporarily, which could negatively reinforce parental coercion if the parent is coercive again in the future (Cooper, Heron, and Heward, 1987; Patterson, 1982). For example, assume a child is

fidgeting in their chair, playing loudly, or is running in the house. If he or she stops immediately after the parent yells, even if the child's response is only momentary, then the parent's coercive behavior has been associated with a change in annoying behavior. If the parent begins to yell more often when undesirable child behavior occurs, then yelling, one form of coercion, has been negatively reinforced.

Although coercive practices may immediately stop various forms of child misbehavior, these changes come at a high cost. Ironically, the regular use of punishment is associated with frustration and negative emotionality in children (Cooper, Heron, and Heward, 1987). In turn, children are more likely to engage in countercontrol behaviors, such as escape or avoidance of parents (Latham, 1998), and find emotional regulation difficult (Herschell and McNeil, 2005). Negative family interactions have also been associated with a lack of parental involvement and monitoring, which have all been shown in epidemiological studies to be associated with deviant peer relations (Ary, Duncan, and Biglan, 1999; Ary, Duncan, Duncan, and Hops, 1999). Both negative family and deviant peer interactions are associated with higher rates of problem behavior, including academic failure, antisocial behavior, sexual risk behavior, and/or substance abuse (Ary, Duncan, and Biglan, 1999; Ary, Duncan, Duncan, and Hops, 1999). The social context model of problem behavior also extends to African Amercian, Hispanic American, and Native American families (Barrera, Biglan, Ary, and Li, 2001).

Broader social environments may also support child maltreatment, especially when characterized by a sense of social disorganization, a lack of "community cohesion," and/or violence in the community (Emery and Laumann-Billings, 1998). These parents often relate to their social settings with aggressive behavior, and/or are

socially isolated from friends and families that can provide reliable social support (Emery and Laumann-Billings, 1998; Tyler, Allison, and Winsler, 2006; Wolfe and Wenkerle, 1993). Several treatment methods have emerged in attempts to eliminate these risk factors over the past few decades.

Treatment Modalities

General Strategies

Treatment for families who actively abuse and/or neglect typically begins with referral to a local child protection service office. In the state of Texas, child protection cases involve several steps from referral to case closure (Texas Department of Family and Protective Services, 2007). First, a referral is made to Child Protective Services (CPS) from neighbors, educators, counselors, or health care professionals who suspect maltreatment. Then, an investigation is made to determine the existence and severity of the alleged events, followed by development of a Family Service Plan (FSP). The FSP may include any number of recommendations, including home safety improvements or parenting classes. As the FSP is being implemented, children will either be allowed to remain in the home for preservation services or will be placed in substitute care. Substitute care placements may be with a noncustodial parent, relative, other kin, or licensed caregivers, whereas adolescent children may opt for a plan to promote independent living. While their children are in substitute care, parents may work toward permanency placement with adoptive parents or reunification with their children. Reunification rates vary, although approximately two-thirds (63.5%) of children are

reunified with their families within one year after removal from the home (Texas Department of Family and Protective Services, 2005).

The two most prominent intervention strategies in cases of child maltreatment are child-focused and parent-focused behavioral interventions (Wolfe and Wenkerle, 1993). Within each strategy are several different treatment modalities designed to address family needs. It is difficult to directly compare treatment modalities delivered across studies due to heterogeneous treatment designs, outcome measures utilized, and populations (MacDonald, 2001). Therefore, both approaches will be reviewed; however, the main focus of this review will be those programs that include parents.

Child-focused strategy. Given the impairments associated with the maltreatment of children, remediation strategies often focus on promoting mental health and functioning of maltreated children. Common child interventions need to address cognitive, social, and behavioral deficits (Dufour and Chamberland, 2004). Social deficits would include affective expression, empathy, social sensitivity, and attachment formation (Wolfe and Wekerle, 1993), whereas common behavioral concerns for children exposed to maladaptive parenting include antisocial behavior, as well as substance abuse and sexual risk behavior (Ary et al., 1999; Barrera, Biglan, Ary, and Li, 2001). Assessments measure progress in each of the aforementioned areas.

Several programs have been developed to meet the mental health needs of maltreated children. Psychotherapists in general treat children according to his or her own theoretical orientation, whether that is psychodynamic play therapy, Adlerian, child-centered, or behavioral (Wagner, 2003). On the other hand, maltreatment-specific

programs include therapeutic daycare, behavioral, or cognitive-behavioral therapy (MacMillian, 2000; Oates and Bross, 1995). Settings include preschools, hospital inpatient programs, in-home treatment, and clinical environments (Oates and Bross, 1995). Therapeutic daycare is a popular maltreatment-specific intervention for young children to promote development, under the assumption that children need warm relations and an enriched learning environment to mimic healthy family relations in a surrogate daycare environment. These programs generally last about 3-24 months (Oates and Bross, 1995). Other interventions meant to improve the lives of children are either parent- or family-focused, since custodial parents arguably have the most power to create healthy environments that also prevent future maltreatment of these children.

Parent-focused strategy. Empirically-based intervention packages focus on reducing any or several previously identified parental risk factors for maltreatment, including poverty, stressors, mental health, or parenting methods. Behavioral interventions train parents to use parenting techniques based on operant conditioning principles (Skinner, 1938) and contain several components. The most essential component is behavioral parent training (BPT), which includes the direct training of parenting behaviors that promote healthy parent-child relationships (Latham, 1998; MacDonald, 2001). For example, BPT may teach play skills, conversation skills, and reinforcement of appropriate behavior, as well as differential reinforcement and contracting to establish order and expectations without coercion. However, other programs expand on training parenting skills by addressing other risk factors. Cognitive-behavioral therapy (CBT) approaches address the role of emotions and thoughts on

behavior. Common techniques address dysfunctional attributions and expectations of children, anger management, self-efficacy, self-care and coping with private experiences such as emotions, thoughts, and physiological arousal (Runyon, Deblinger, Ryan, and Thakkar-Kolar, 2004; Sanders, Cann, and Markie-Dadds, 2003; Wolfe and Wekerle, 1993). Broader behavioral interventions address not only individual-level coping strategies found in CBT, but also broader contextual factors, such as alleviating poverty and marital conflict (MacDonald, 2001). The next section will review BPT programs overall (Wolfe and Wekerle, 1993).

Behavioral Parent Training

Behavioral parent training (BPT) has been widely recognized for children and families, due to its availability and efficacy for reduction of problem behavior in children (Serketich and Dumas, 1996), as well as its relatively short-term length of treatment (Skowron and Reinemann, 2005). Additionally, by focusing on concrete skill acquisition and interaction with children in order to solve the problem of child maltreatment, BPT is appropriate for clients who have a less advanced education or lower intelligence (Wolfe and Wekerle, 1993).

A meta-analysis conducted on 21 parenting intervention studies showed that the effect sizes of BPT interventions ranged from Cohen's *d* = 0.28-0.87 (mean = 0.40) when delivered in a variety of formats, including group, individual, and/or family. However, comparison of BPT to other forms of therapy is difficult given the disparity of outcome measures found in child maltreatment literature. For example, some measures had parent or teacher ratings of child-personality, while BPT programs often depend on

direct behavioral observation (Skowron and Reinemann, 2005). Pre-post BPT comparisons found that family interactions following treatment included less criticism and more positive interactions among physically abusive parents and their children (Oates and Bross, 1995). BPT outcomes reported across types of maltreatment yielded lower rates of coercion and higher rates of positive interactions (Wolfe and Wekerle, 1993). Reviews of CBT interventions found that CBT participants realized reductions in aggressive and coercive behavior, with increases in positive parenting responses (Dufour and Chamberland, 2004; MacDonald, 2001; Wolfe and Wekerle, 1993), as well as further development of coping and problem-solving skills (Wolfe and Wekerle, 1993).

Acquisition of parenting skills is important, yet skill maintenance is also an important consideration for any behavioral program, since it reflects continued use of the skills taught during training (Cooper, Heron, and Heward, 1987; Fabrizio and Moors, 2003). Many studies demonstrate maintenance of parenting skills taught (DeGarmo, Patterson, and Forgatch, 2004; Eyberg, Edwards, Boggs, and Foote, 1998; Sanders and James, 1982a; Sanders and James, 1982b; Wolfe and Wekerle, 1993), even up to one year following training (MacDonald, 2001). However, others do not (Braswell, 1991; Sanders and James, 1982b). Theoretically, the positive changes in child behavior that occur when positive parenting behaviors are used would be enough to reinforce appropriate parenting behavior; however, Reese and Serna (1986) highlight several reasons why that may not be the case. Appropriate parenting behavior may be discouraged if parents are displeased with slow or subtle improvements in their child's behavior, as well as if the parent receives the negative reinforcement that comes with immediate termination of problem behavior with the re-emergence of a coercive

technique. Hence, people outside of the family, such as volunteers or professionals (Sanders and James, 1982b), or even other family members (Reese and Serna, 1986) can promote maintenance by positively reinforcing adaptive parent behaviors. This social reinforcement effect was shown empirically when mothers who were supported by their child's father made significant changes that were maintained four months later, although single mothers, who actually made larger gains, lost more of the skills they gained after the four-month window (Bagner and Eyberg, 2003).

BPT programs often plan for skill maintenance. During the course of training, programs can extend the length of time between final sessions in an attempt to fade out training (Eyberg et al., 1998), or through instructional methods that have many opportunities to practice parenting skills while trainers provide minimally-invasive prompts (Crimmins, Bradlyn, St. Lawrence, and Kelly, 1984). In addition, self-management training may be added to typical BPT curricula that focuses on parent-child interaction (Sanders and James, 1982a). Alternatively, supplemental "booster" sessions provided after the completion of formal training have also shown efficacy for samples with a variety of presenting complaints (Edwards, 1998; Eyberg et al., 1998).

On the other hand, BPT is not equally beneficial for all parents. As with any other treatment program, participants who are engaged achieve better results; attendance in sessions, completion of assignments, and classroom participation are all predictive of initial skill acquisition in parenting programs (Lundquist and Hansen, 1998). Thus, any factor that impedes these three areas could impact outcomes, including high levels of stress, difficulties learning, or a poor history in educational settings. For example, withdrawal is higher among parents who experience more stress, such as those who

encounter a high level of marital conflict, and mothers who are depressed or who head a single-parent household (Serketich and Dumas, 1996). Such withdrawal is associated with attenuated gains overall (Dumas, 1984). Reviews show that parents with low socioeconomic status, and those with strained or insufficient social interactions with other adults tend to make limited gains, and have poorer skill maintenance in BPT programs in comparison to parents who do not face these challenges (Dumas, 1984; Serketich and Dumas, 1996). Parents whose children exhibit antisocial behavior also show attenuated gains and skill retention (Serketich and Dumas, 1996). Finally, efficacy of treatment may also depend on the type of maltreatment that contributed to their BPT referral (Dufour and Chamberland, 2004; Skowron and Reinemann, 2005). For instance, CBT interventions that are heavily dependent on social learning and operant conditioning, generally find positive results, although 1 of 4 reviews on sexually abusive parents and half of the reviews on physically abusive parents show mixed results (Dufour and Chamberland, 2004).

Comprehensive programs have tried to address problems that lead to attenuation in skill acquisition and maintenance by combining BPT with other interventions into a treatment package. Cognitive-behavioral interventions (Runyon, Deblinger, Ryan, and Thakkar-Kolar, 2004; Wolfe and Wekerle, 1994) such as the Triple P: Positive Parenting Program (Sanders, Cann, and Markie-Dadds, 2003) have demonstrated successful results for interventions that incorporate behavioral training and other components to address attitudes, anger, etc. However, a behavioral program “enhanced” by supplemental services actually lead to smaller gains than were found among participants who received Parent-Child Interaction Training (PCIT) alone (Chaffin et al.,

2004). Likewise, MacDonald (2001) noted that teaching behavioral procedures in the context of a “casework approach,” found only marginal reductions in coercion and no pre-post differences found on indicators of physical abuse.

External validity, which looks at the quantitative relationship between acquisition of treatment gains and salient outcome measures (e.g., reductions in recidivism) has rarely been measured, although early qualitative reports state recidivism rates are high for psychotherapeutic treatments in general (Skowron and Reinemann, 2005). Over time, most reports show that recidivism, or recurrence of abuse, happens in 19-66% of parents who have received treatment for child abuse (Rubin Williams, 1983). A more recent study showed a recurrence rate of 48% at the end of three years and 62% at the end of 7.5 years (Drake, Jonson-Reid, and Sapokaite, 2006). Factors that make recidivism more likely include report of neglect or mixed typography of maltreatment, young age, child medical concerns (Drake, Jonson-Reid, and Sapokaite, 2006), child vulnerability, family stress, partner abuse, and social support deficits (DePanfilis and Zuravin, 1999). There is evidence that intervention can prevent recurrent maltreatment (Doolittle, 2000), especially interventions using CBT (Valle and Lutzker, 2006). However, a small sample study that examined results from an in-home behaviorally-based parent training taught with self-control techniques, showed a nil rate of recidivism among treatment subjects at 1-year follow-up (Wolfe, Sandler, and Kaufman, 1981).

This paper reviews BPTs used to remediate several forms of maltreatment, including neglect, physical abuse, and psychological abuse. Parent-Child Interaction Training (PCIT; Herschell and McNeil, 2005) was named a “best practice” for child physical abuse (Kaufman Best Practices Project, 2004). Ecobehavioral approaches

(Lutzker and Bigelow, 2001) include comprehensive programs designed to address a variety of concerns for parents. The Essential Tools for Positive Behavior Change (Smith, Berends, and Smith, 2007; Van Camp, 2008a) has been efficacious in teaching foster parents how to successfully build relationships with and manage inappropriate behavior of their wards will be briefly discussed.

Parent-Child Interaction Training (PCIT). PCIT is a BPT that incorporates operant behavioral and social learning principles into an intervention designed to teach parents with young children - ages 2 to 7 years - appropriate interaction skills (Herschell and McNeil, 2005). Efficacy has been found while treating a variety of issues, including developmental disabilities, reactive attachment disorder, and disruptive problem behavior (Storch and Floyd, 2005). Additionally, PCIT was named as a “best practice” for child physical abuse by the Kaufman Best Practices Project (Chadwick Center on Children and Families, 2004). PCIT assumes that secure attachment can be developed by increasing Child-Lead and Positive Interactions (Storch and Floyd, 2005). A number of facts indicate that PCIT would be an appropriate modality to treat physical abuse (Herschell and McNeil, 2005; Urquiza and McNeil, 1996). For example, parent-child interactions set the stage for physical abuse, most abuse happens to young children, and social learning models of instructions have been shown to be effective for parent training.

PCIT was modified for use with physically abusive parents (Chaffin et al., 2004). First, a six-week “motivational enhancement” group orientation was used to explain benefits of the group; parents who were not motivated to do PCIT were not allowed to

begin training without further commitment. Basic PCIT itself has two strategies: Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI; Storch and Floyd, 2005). The goal of CDI is to reduce coercive tactics and to specifically develop play therapy skills under the acronym PRIDE: praise, reflect, imitate, describe, and show enthusiasm. PDI focuses on positive behavior modification or time-out to handle behavior problems, rather than relying on physical or psychological coercion. PDI protocols train parents to use effective commands, to accurately discriminate child compliance vs. noncompliance, and to use time-out. All skills are taught via didactic instruction, modeling, and role play. Once the parent has mastered a skill in role plays with their instructors, the parent then interacts with his/her child, while the therapist coaches from a distance using a bug-in-the-ear device (Herschell and McNeil, 2005). A variety of modifications were made to intervene with maltreating parents, such as: raising the age range of inclusion to accommodate parents with older children and eliminating the authorization to use “mild physical punishment” if time-out is ineffective. Additionally, self-control strategies were taught to help parents cope with anger: parents were trained to stop, monitor their emotional state, and use relaxation before implementing time-out (Chaffin et al., 2004).

Maintenance studies have not been done with PCIT for child maltreatment, although studies of PCIT for child behavior disorders imply skill maintenance. Self-report follow-up studies at both four months (Schuhmann, Foote, Eyberg, and Boggs, 1998) and 3-6 years (Hood and Eyberg, 2003) find that ratings of inappropriate child behavior reflected reductions maintained from post-course assessment. A maintenance study that used both self-report and observational data demonstrated less definitive

success (Eyberg et al., 2001). Reductions in self-report child problem behaviors and intensity of behaviors were significantly improved and well maintained from baseline. However, two of the observed parenting skills did not have significant pre-post improvements to maintain in the first place and none of the four had significant pre-test to follow-up improvements in their small sample study (Eyberg et al., 2001). By contrast, a PCIT program with maintenance assessment and booster intervention for parents whose preschool children have behavior problems demonstrated gains on observed parenting skill and child behavior (Edwards, 1998).

External validity of PCIT outcomes for physically abusive parents has been positive. A randomized controlled trial that compared parents with an average of four reports of maltreatment found significant between-group differences in rate of recidivism (Chaffin et al., 2004). Parents who received PCIT alone had a drastically lower recidivism rate as compared to parents who received either PCIT plus mental health services, or a standard 15-week manualized psychoeducational group intervention (19% vs. 36% vs. 49%, respectively). Analyses found that these results were mediated by the reduction in coercive parent behaviors.

Advantages of PCIT include that training was done with both parent and child, directly observed measures were completed during the course of therapy, and the reduction in recidivism rate that occurred for PCIT parents was mediated by the behavior change, but not by ethnicity or changes in attitude. In addition, use of PCIT reduces parental maltreatment, as well as child misbehavior. One of the disadvantages unique to PCIT is that it requires that parents have access to their children, which is not

possible for parents who are state-referred, unless there is coordination between local protective service offices and treatment providers.

The Ecobehavioral Model. The ecobehavioral model assumes that child maltreatment is a social-ecological problem; thus, any assessment and remediation has to include the same social context in which these behaviors emerged—the family (Lutzker and Bigelow, 2001). The ecobehavioral model holds the same standards for research and intervention set by the field of behavior analysis as a whole, including the use of baseline logic in single-subject research designs (Lutzker, 1998).

The ecobehavioral model addresses child maltreatment in two different programs (Gershater-Molko, Lutzker, and Wesch, 2003). Project 12-Ways was intended to address a variety of risks: poverty was addressed via job and money management skills training; stress was addressed by stress reduction techniques, self-control training, and alcoholism referral; parenting was addressed with basic skills training for children, reciprocity or relationship building, and multiple-setting behavior management; physical health was addressed with preventative health practices, first aid, and when to seek healthcare; as well as training to eliminate home safety hazards (Lutzker and Bigelow, 2001). Project Safecare was a condensed version of Project 12-Ways that concentrated on the three units designed to directly prevent maltreatment in the parent-child relationship: basic healthcare, home safety, and parent-child interaction training, which was combined with multiple-setting behavior management (Gershater-Molko, Lutzker, and Wesch, 2003).

Project Safecare includes a variety of behaviorally-based strategies delivered over the course of five weeks per module (Gershater-Molko, Lutzker, and Wesch,

2003). The healthcare module was designed to train parents how to discriminate among situations that require first aid, those that require a physician consult, and situations that require a trip to the emergency room. Instructional methods relied upon traditional instruction (i.e., a manual and discussion), trainer modeling, role play scenarios for parents to practice these skills, feedback from instructors, and positive practice of forgotten or missed steps. The home safety module was designed to eliminate objects and situations that could be a risk to children within a household. Instruction may rely upon either video, or video plus instruction, and feedback.

Interaction training was provided to parents in order to promote practices that build rapport and connection between adults and children in either a parent-infant or parent-child format. There were several scenario cards that established an activity for parents, during which they would engage in rapport building behaviors with their children. Planned activities training (PAT), also a part of this module, focused upon situations in which parents place demands on children, such as for bathroom routines or cleaning their rooms. Training used an explanation of rationale, modeling, practice, and feedback on the use of a task analysis checklist appropriate for any planned activity. Tasks on the checklist included, but were not limited to: prepare materials, explain expectations and consequences, and prompt as needed. Materials, protocols, and forms for each module were provided in Lutzker and Bigelow (2001).

Efficacy research has found that the Ecobehavioral approach is successful. A review of single-case design experiments found skill acquisition as well as improvements in parent context including economic situation, affective coping skills and mental health. The family environment demonstrated improvements in child health care,

behavior management, infant stimulation, and safety, in addition to reductions in coercion (Wolfe and Wenkerle, 1993). Project Safecare found that 90% of families in the healthcare module reached 100% criterion, while the others achieved significant gains; safety hazards were reduced by 70% of baseline on average, child management skills improved by an 84% margin to 92% of criterion, and positive parenting interactions significantly improved from 60% at baseline to 74% of criterion (Gershater-Molko, Lutzker, and Wesch, 2003).

Ecobehavioral interventions showed skill maintenance across all three components of Project Safecare in separate single-subject design studies. A case study found that skills to reduce safety hazards in the home were maintained at both one and four months after training (Mandel, Bigelow and Lutzker, 1998). Healthcare skills taught to parents by research assistants were all maintained above the 90% criterion at six months post-training. By contrast, only one of four participants trained in healthcare skills by either a nurse or caseworker maintained skills at or above the 90% criterion, and another maintained skills above the 80% criterion (Bigelow and Lutzker, 2000). The Planned Activities Training Module for Spanish-speakers found that parent skills were maintained above 80% of criterion at both 5 and 8 months post-treatment (Cordon, Lutzker, Bigelow, and Doctor, 1998).

In ecobehavioral program evaluations that examine external validity, participants had lower maltreatment recidivism rates as did treatment-as-usual peers. Project 12-Ways participants most often realized half the recidivism rate, with 10% vs. 21% recidivism in one study (Lutzker, 1998), and 13% vs. 25% in another (Wolfe and

Wenkerle, 1993). A large scale study of 700 families realized a less substantial, yet still significant, change with 21.3% vs. 28.5% (Wolfe and Wenkerle, 1993).

There are several advantages and disadvantages of Ecobehavioral approaches. Advantages include that these approaches are time-limited interventions that utilize efficient and effective teaching strategies, such as modeling, practice, and feedback, to capitalize on human learning principles, and use direct assessment to ensure skill transfer to adequate levels in-home. Additionally, such programs address issues common to abusive and/or neglectful parents, such as home safety and coping skills that are not addressed in many other treatment approaches. However, there are disadvantages as well. Although mental health screening is useful and can provide much needed assistance, small-budget programs would not be able to provide all of the services offered by Project 12-Ways. Also, training provided by community practitioners appears not to be as effective as training provided by research assistants (Bigelow and Lutzker, 2000). Additionally, although positive parent behaviors and planned activity skills were implemented more effectively, no significant change was found in the number of times the children followed instructions post-training in the parent-child interaction component of Project Safecare (Gershater-Molko, Lutzker, and Wesch, 2003).

Essential Tools for Positive Behavior Change. A parenting curriculum was created in *The Power of Positive Parenting,* a handbook format that was based on behavioral principles with an applied behavioral approach (Latham, 1994; Latham, 1996). The main assumptions are that behavior is largely a product of its environment

due to the consequences that occur during or after a behavior is completed. Furthermore, behavior is better shaped by positively reinforcing consequences than coercion or other aversive procedures. The program thus advocates development of a positive parenting environment that focuses on the parent-child relationship and appropriate child behavior, while it limits coercion of several types. There were no published studies based on Latham's work, although his work was based on principles and procedures consistent with applied behavior analytic technology (Cooper, Heron, and Heward, 2007).

There are six main parenting skills emphasized by Latham's approach, of which the first three aim to increase the reinforcement:coercion ratio (Latham, 1994; Latham, 1996). The first tool, *eliminate coercion,* discusses several forms of coercion and establishes coercion as something to eliminate from parenting, as it is a risk factor for child maltreatment. The next, *stay close,* teaches parents to use active listening and empathy regardless of what a child brings to a discussion. With *use reinforcement,* parents are asked to recognize and reward appropriate behavior with a variety of consequences such as attention, extra play time, privileges, or even small toys. There is also instruction on how to troubleshoot if reinforcement does not increase the rate of desired behavior. Overall, increasing the rate of positive interactions to 15-20 per hour via humor, shared activities, staying close, and/or reinforcement is recommended. The main purpose is to establish a consistent and solid parent-child relationship.

The next three tools describe how to increase the ratio of appropriate to inappropriate behavior in a way that teaches the child skills as needed and makes use of reinforcement to increase the desirable behavior (Latham, 1994; Latham, 1996).

First, when the inappropriate behavior is annoying, but essentially harmless, it is considered inconsequential *junk* behavior. Junk behavior can be handled with a differential reinforcement technique known as *pivot* or *planned ignoring* of the inappropriate behavior until new behavior appears or the inappropriate behavior lessens in intensity. The parent focuses on either the appropriate behavior of a sibling or attends to something else in the environment. As soon as the child begins to behave appropriately, his or her behavior is quickly recognized and reinforced. Second, when the inappropriate behavior is dangerous to anyone involved, or is destructive, then appropriate behavior can be prompted via *redirect and reinforce*. The parent is asked to block the inappropriate behavior and prompt the child to do something more appropriate instead, such as playing ball outside instead of in the living room. Once the child initiates the appropriate behavior, that behavior is immediately reinforced with attention and/or other preferred items. The final strategy is to *set expectations* or clearly communicate the rules and follow up with stated consequences: appropriate behaviors earn attention and other rewards; inappropriate behaviors do not earn rewards. Expectations and the positive consequences that these actions earn can be listed in a contract, which helps parents track the rate of appropriate behavior.

A program known as the Essential Tools for Positive Behavior Change was created to address the challenges encountered within the foster care system based on Latham's six main parenting skills, as well as four other skills that promote mastery of the applied behavioral approach (Stoutimore et al., 2008). Behavior Analysis Services Program (BASP) taught this curriculum to foster parents in order to address the needs of Florida's foster care system. Foster care provides a place to live for children who

were removed from their parents by the juvenile court system due to maltreatment or other serious family issues. Consequences of child behavior problems to the foster care system include child placement disruptions, foster family burnout, and high costs for child welfare service offices (BASP, 2007).

Classes are taught in various formats to promote optimal skill transfer. Consistent with the best practices model for skill training (Joyce and Showers, 1980), BASP curricula includes discussion, modeling, practice via roleplays and feedback in session, with optional in-home coaching session and access to 24-hour support hotline (Stoutimore et al., 2008). Training formats vary, but may include 30-hours of classroom-based training in three-hour increments (Stoutimore et al., 2008; Van Camp, 2008a) or several days of in-service training for group homes (Crosland et al., 2008). In addition, a 24-hour problem solving hotline and an optional in-home training sessions were offered to improve generalization of treatment effects (Stoutimore et al., 2008).

Behavior Management and Parenting Services (BMAPS) at the University of North Texas adopted the Essential Tools curriculum from BASP in 2005 to address parenting skills among parents whose children are in state custody. Teaching methodology remains the same as described for the BASP program, although the in-home support component is excluded to better fit the needs of the referral agency. BMAPS participants are mandated to receive parenting education as a necessary, but not sufficient, precondition to receiving custody of their children. These parents are non-custodial and typically have limited supervised visitation privileges. The current curriculum is delivered in five, three-hour courses, for a total of 15 hours of instruction.

Both BASP and BMAPS participants have demonstrated skill acquisition in multiple assessments. Foster parents served by BASP had post-test scores that averaged in the 80s, with 60-100% improvement over baseline scores in a study of skill acquisition (Van Camp et al., 2008a), and participants showed similar improvements in a study of skill maintenance, although the extend of improvement followed an idiosyncratic (Van Camp et al., 2008b). In the BMAPS program, there were similar variations and similarly large pre-post improvements of 39% to 72% above baseline among a cohort of ten participants (Berard, 2007). An overall program evaluation of skill acquisition among all 165 BMAPS parents referred for maltreatment showed an overall average of 80% and improvements that range from 33% to 80% above baseline (Smith, Berends, and Smith, 2007).

Skill maintenance evaluation shows mixed results, although external validity evaluations have also shown promising results in the BASP program. Using an ABAB design, the period between pos-test and the maintenance probe was marked by reductions in the ability to demonstrate parenting skills 8-34 months later (Van Camp et al., 2008b). However, participant scores went right back back to post-test levels after a six-hour booster session. External validity was shown across populations, demonstrating gains appropriate to treatment goals. Foster parents who enrolled in the BASP program had consistently better placement stability for their wards through their eight years of service (Stoutimore et al., 2008) and inpatient youth facilities demonstrated a 50-70% reduction in use of physically restrictive procedures after BASP workshops (Crosland et al., 2008).

Summary and Hypotheses

A variety of behavioral parent-training interventions have shown efficacy in developing positive family relations. Methodological limitations of behavioral parenting research include inconsistent use of multiple observers during data collection, relatively few efforts to assess skill maintenance outside of BPT models (Bourret, 2002), and failure to assess possible factors underlying poor performance within BPT models. This study featured (1) interobserver agreement of observational behavior measures, (2) assessed skill acquisition, maintenance, and re-acquisition, then (3) investigated possible reasons for attenuation of BMAPS program outcomes, such as acquisition, maintenance, and re-acquisition.

During Phase 1 of this study, it was hypothesized that participants would make treatment gains from pre- to post-testing, would retain their skills from post-testing to the maintenance probe, and any losses at the probe would be regained after booster training. First, pre-post gains were assessed. It was assumed that parents who do not meet the 75% post-training criteria for success were impeded by factors that in theory could or historically have attenuated skill acquisition, such as experiential avoidance (Coyne and Wilson, 2004), parent distress (Serketich and Dumas, 1996), incomplete or poor quality homework, and/or minimal class participation (Lundquist and Hansen, 1998). Secondly, skill maintenance was measured, which is a common concern for any behavioral program (Cooper, Heron, and Heward, 1987; Fabrizio and Moors, 2003). Since there were skill maintenance deficits, I investigated whether these deficits were influenced by previously mentioned factors that impede skill maintenance. Thirdly, it was expected that parents who participated in a booster session would score higher on

follow-up assessment than they did before completion of the review session (Eyberg, Edwards, Boggs, and Foote, 1998). For those who did not, it was assumed that performance and psychological factors influenced the results.

Phase 2 laid the groundwork for long-term outcome research. Brief interviews were conducted with parents who were enrolled during the first two years of BMAPS operation, to provide descriptive data on clientele (i.e., demographics, reunification rate, recidivism rate). Under the assumption that BMAPS scores may reflect critical outcomes for parents (e.g., 98reunification, recidivism), initial pre-post gains were compared among those who did and did not achieve each of these outcomes.

CHAPTER 2

METHODS

Phase 1: Skill Maintenance and Performance Factors

Participants

Participants were parents referred to the Behavioral Management and Parenting Services (BMAPS) program as part of a court-mandated remediation process for parents. The identified goal is family preservation and/or reunification. Inclusion criteria for this study include a referral from the local Texas child protection agency district, as well as being over the age of 18, a fluent reader and writer of English, and informed consent.

Measures

Demographic questionnaire. Participants were asked about their gender, ethnicity, number of children, age of their children, and annual household income. Social support was assessed with two questions: “How many people do you feel you can tell anything to?” and, “How often do you see or talk to one of these people?” (1 = *once every couple months*, 2 = *once a month*, 3 = *once every 2 weeks*, 4 = *once a week*, 5 = *twice a week*, 6 = *several times a week*).

Distress questionnaire. The Hopkins Symptom Checklist-25 (HSCL-25; Derogatis, Lipman, Rickels, Uhlenhuth, and Covi, 1974) is a self-report measure that rates common symptoms of distress: 10 items assess anxiety-related symptoms, and 15 items assess depression-related symptoms. All 25-items items are answered on a 4-point Likert-type scale (1 = *not at all*, 4 = *extremely*). The measure has shown high

concordance with physicians' and psychologists' reports of patient distress, and has a four week test-retest reliability of at least r = .70 (Winokur, Winokur, Rickels, and Cox, 1984). The HSCL-25 Total Distress score is determined by the arithmetic average of the responses. High scores indicate more distress, and a score of 1.75 or high indicates a clinically significant level of distress (Winokur et al., 1984). In the current study, internal consistency was high at all time points for the Hopkin's Symptom Checklist Distress scale (Chronbach's α = .86-.92).

Experiential avoidance. The Acceptance and Action Questionnaire-II (AAQ-II; Bond and Hayes, 2005) is a self-report measure of experiential avoidance. Experiential avoidance is defined as taking action to change the form or frequency of private experiences, such as memories, images, emotions, or thoughts (Hayes, Wilson, Gifford, Follette, and Strosahl, 1996). The AAQ-II is highly correlated with its previous version, the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). In both medical and community samples, internal consistency for the AAQ is excellent (α = .81-.87) and 9 of 10 items fit into a single factor structure in large population samples (Association of Contextual Behavioral Sciences, 2008). Items are reverse-scored as needed and summed to produce a total score. The AAQ-II includes 10-items that are answered on a 7-point scale (1 = never true to 7 = always true). High scores indicate greater acceptance of private experiences and acting according to values, with less experiential avoidance or immobility. Internal consistency for the Acceptance and Action Questionnaire-II was adequate at the pre-test (Chronbach's α = .73), although it was

lower for later administrations (Chronbach's α = .27-.56). Therefore, only the pre-test AAQ-2 score was used for analyses.

Parenting behavior assessments. Positive parenting skills were assessed in vivo with behavioral checklists at baseline, after acquisition, after 3-4 months (maintenance), and after the review session (booster). Parents were to demonstrate parenting skills in six role plays, as they interacted with BMAPS staff. Two staff conduct an assessment of each skill, with one staff acting as a child and the other being data collector in five scenarios. These scenarios present opportunities for participants to use one of the following positive parenting tools: setting expectations (*Set Expectations*), reinforcement (*Use Reinforcement*), planned ignoring or differential reinforcement (*Pivot*), conversation skills (*Stay Close*), and redirection to a different activity with reinforcement (*Redirect-Reinforce*). To assess ability to write behavior contracts (*Use Contracts*), parents were asked to write a contract based on a written scenario describing a long-standing behavior problem, a socially-appropriate replacement behavior, and the child's preferred activities that could be used as reinforcers.

The role plays were used to look for ability to execute component skills in situations in which parents commonly react to child behavior. Role play scenarios included the instruction: "We will give you a scenario in which we will act as your kids and you will be the parent. Just react how you normally would in this situation." Examples of scenarios are when a child is disappointed after a bad day, a child protests, and when a young child endangers a baby with his or her attempts to play. Examples of component skills for the *Stay Close* tool's conversational skill set include:

positioning within arms distance of the child within 15 seconds, touch appropriately, use a relaxed posture, use a tone of voice that matches that of the child, use a matching facial expression, ask open ended questions, listen, give an empathy statement, ignore junk behavior, and refrain from using coercive interactions. Component skills on a task analysis worksheet were tallied Yes or No by the data collector. For each step completed accurately, the parent got one point. Scores were computed by dividing the sum of correctly executed components by the number of steps per analysis to derive a percentage. The overall average was calculated by dividing the sum of percentage scores by the number of tools.

Role play assessments appear to be valid measures of positive parenting skills for several reasons. The skills assessed by our measures are identical to the skills trained in class. The contingencies in role plays may be an overestimate of skill demonstrated in natural settings; however, the BMAPS assessment package has qualities that are common among valid social skills role play assessments (Torgrud and Holborn, 1992). For example, participants were instructed to react as they normally would to the situations presented to them, BMAPS staff gave performances that simulate realistic child behaviors, and the scenarios had content validity.

Reliability for the current study is adequate. Interobserver agreement (IOA) for the scoring protocol previously met behavioral research standards, IOA = 90% (Berard and Smith, 2007). All BMAPS data collectors demonstrate competency during their training by demonstrating reliable and accurate data collection before being allowed to rate data independently. Furthermore, the entire BMAPS team met on a continuous basis to discuss current challenges and issues, including data collection. Due to staffing

shortages, reliability data was restricted to data collected for 28.6% of Follow-up session data points. Point-to-point inter-observer agreement was adequate for these behavioral role play measures (*M* = 84%, range 81-86%). Disagreements included ratings on parent delivery of appropriate reinforcers and appropriate tone of voice during *in vivo* conditions. For example, one staff strictly followed criteria that defined the appropriate reinforcer for one assessment as a praise statement on the score sheet, whereas another staff relied on the broader definition of a reinforcer that includes playful interaction, consistent with the definitions of reinforcers taught in class.

Performance measures. Performance measures included Homework Completion and Class Participation. Parents were asked to turn in completed homework four out of the five sessions. Their homework was to practice the tools taught in class that week, and the completion score was the total percent of homework assignments completed and returned at the next session. Class participation was evaluated on a 3-point Likert-type scale (1 = *minimal*, 3 = *active*).

Procedures

Staff training. Staff were all graduate students in the Behavior Analysis (ABA) program at the University of North Texas with 1-3 years of coursework and relevant experience in ABA positions. In order to become a BMAPS instructor, they completed requirements of an extensive training program. The training program included: (1) observation and limited assistance during one 5-week cohort, (2) responsibilities to model tools and review of the previous week's lessons during the next cohort, and

finally, (3) the duties of the lead instructor (see the Enrollment and coursework section below for further explanation). During all phases of training, and during at least a third of sessions with fully-trained staff, a member of the BMAPS Management team (e.g., Program Director, Training Director) filled out checklists of duties appropriate for each role. Feedback was given to Training Team staff (e.g., Co-instructor, Lead Instructor) by the Executive Team member after class, unless he or she chose to assist with instruction during class.

Enrollment and coursework. Parents were given a choice of service providers by their caseworker. Then, parents called to enroll in classes. Upon arrival for their pretest, parents were recruited for the research. At the beginning of class, a research assistant who was not subsequently involved in data collection told the class that in addition to the BMAPS program, they could choose to participate in a research study to earn money for completing a couple of short surveys and coming in for one follow-up session. Anyone who was interested in hearing more about the study was asked to raise their hands at that time and to approach the assistant after their BMAPS pre-course assessments were complete.

Participants were taken through the full the informed consent process before they decided to participate. Topics discussed included the purpose of the study, benefits, risks, precautions the researchers were taking to limit risks, confidentiality practices, and how to get additional information or give feedback about the study to the faculty advisor and local Institutional Review Board. Examples of disclosures included that (a) parent participation was strictly voluntary and their data would be used only with

their consent , (b) choosing to participate or not participate will not affect the BMAPS evaluation or referral report in any way, (c) any data collected solely for the purposes of this study would be kept confidential and would not be tied to identifying information in our database or reported to their caseworker, and (d) they would receive $50 cash if they come back 3-4 months after the class was finished to conduct a follow-up test. Parents who chose to participate then received a slim packet containing the written demographics and psychological measures.

All participants took a series of five 3-hour classes that taught fundamental parenting skills: conversation skills, reinforcement, planned ignoring or differential reinforcement, redirection and reinforcement, as well as setting expectations, and writing behavioral contracts. The training curriculum was based on Latham's (1994) book *The Power of Positive Parenting* and the training methodology was based on the Essential Parenting Tools for Positive Behavior Change created by the Florida-based Behavior Analysis Service Program (BASP) curriculum (Stoutimore et al., 2008; Van Camp, 2008a). Modifications found in the BMAPS program included exclusion of three tools to narrow the focus of training and exclusion of the optional in-home generalization training standard in the BASP program.

Procedures for teaching each tool included discussion, modeling, initial practice, and feedback. This methodology includes four out of five practices identified for successful skill generalization (Joyce and Showers, 1980), which excludes the fifth practice, *in vivo* coaching, due to contractual limitations. The same methodology has been used not only within BASP (Stoutimore et al., 2008; Van Camp, 2008a), but also various components of Project 12-Ways' (Gershater-Molko, Lutzker, and Wesch, 2003).

Instruction relies upon active participation and practice. For each skill, there was an introduction to each topic via slide show presentation, and trainers modeled the skill and solicited engagement in classroom discrimination tasks, discussion, and problem solving. Afterward, parents were asked to practice each skill during in-class role plays with the trainer or co-trainer in front of the room. Feedback from instructors in the form of prompting and/or positive practice of forgotten or missed steps was provided as needed until 100% accurate completion for that skill was demonstrated at least once. Praise was provided for correct component skills performed, regardless of mistakes and the need for prompting. Parents observed their peers practice in front of the class, hence participants were able to learn from the performance of their peers and feedback they received. The fifth session reviewed each tool and appropriate times to use each briefly, then concentrated on practice. Participants practiced appropriate selection of tools to use in a given scenario, followed by parent demonstration of that tool and feedback given by staff. Instructors utilized the same prompting and reinforcement procedures employed during initial training.

Criteria for passing the course were based on minimum behavior assessment scores, rather than mere completion of the five class series. One week after the five course series concluded, parents again completed assessments of their ability to use each of the six tools from class. Criteria required at least a 70% overall average and at least 60% on each tool. If a parent did not reach criteria, then the BMAPS report submitted to their caseworker recommended that the parent return for remedial training for tools that did not meet criterion. Remedial training was attending instruction for the same tool with a different cohort. Whether the parent actually attended the remedial

session(s) before the follow-up was influenced by the caseworker, deadlines for completing the course, and other individual differences.

In this study, four of the seven participants who completed the course and attended the follow-up session did not meet criteria. Two did not meet criterion for one tool, whereas the other two did not initially meet passing criterion for two tools. Each was recommended to receive remedial training. Five participants attended the five initial sessions, one participant attended six (the initial and a remedial session), and the remaining participant attended seven sessions of initial training and remediation, combined (M = 5.43). Both participants who returned for their remedial training passed after the first remedial session, and their post-course scores were adjusted to reflect their improved performance.

Measurement. See Table 1 for a timeline of when each measurement was administered. At the Pre-course session, informed consent was obtained after parents completed their BMAPS paperwork and behavior assessments. Participants were invited to ask the research assistant about any question they might have about any of the items on their questionnaires, and then they completed their psychological assessments in a packet. At the post-test and follow-up sessions, these measures were administered while waiting for, or just after the behavior assessments were complete.

Table 1

Timeline of Assessments Administered

Session Name				
Pre-Course	Training Sessions	Post-Course	Maintenance Probe	Booster
Assessments Administered				
Behavioral[a], Psychological[b]	Performance[c]	Behavioral[a], Psychological[b]	Behavioral[a], Psychological[b]	Behavioral[a]
Time (Weeks)				
Week 1	Weeks 2-6	Week 7	Week 28-32 (Exact week varies)	
Number of Participants				
27	Varies	16	7	

[a]Behavioral assessments: Roleplay measures of course tools, [b]Psychological assessments: Distress, Experiential Avoidance, [c]Performance assessments: Participation and homework completion.

Phase 2: External Validity

Participants

Attempts to phone parents who completed the BMAPS program before December 31, 2007 were made at least four times. Telephone numbers were obtained from BMAPS files. Calls were made during the afternoon and evening, both weekdays and weekends. Of the 187 participants contacted, 109 (58%) of the numbers were disconnected and 46 (25%) of the numbers had unidentified voicemails and never responded to subsequent attempts. Of the remaining 32 (17% of all possible participants) who were reached, the majority (22; 69%) gave informed consent to participate in a 10-minute phone interview about their experience during and after the BMAPS program as part of a program evaluation, consistent with Institutional Review Board guidelines for telephone research.

Measures and Procedures

A short interview, written by the author, was given to assess basic demographics and outcomes since participating in the BMAPS program. Demographic information included age, gender, ethnicity, education, annual household income, number and ages of children. Parents were asked why they were referred to the BMAPS program and if they were referred for supplemental services, such as other parenting courses, substance abuse services, individual therapy, offense-specific education (e.g., shaken-baby prevention). Parents were asked if they currently have custody of their children. If not, then follow-up questions were asked. These included: whether they were reunited at any time after being in BMAPS, if they shared custody, if they had supervised visits, or if their rights were terminated. Parents were asked about non-traffic related arrests and whether the court system pressed charges against them for child abuse or neglect that happened after completion of the BMAPS program.

CHAPTER 3: DATA ANALYSIS

Phase 1: Skill Maintenance

Descriptive Statistics

Sample characteristics. Demographic information included gender, age, ethnicity, education, annual household income, and number and age of children.

Reliability. Internal consistencies were calculated at each time point for each multi-item Psychological variables. Point-to-point IOA was obtained for all behavior assessments. IOA was calculated by comparison of each data point collected by two independent raters. If the same item was scored the same way on both sheets, it was an agreement; if not, the item was scored as a disagreement. IOA was calculated by taking the number of agreements divided by the number of agreements plus disagreements, multiplied by 100. Calculation of IOA covered 20-30% of data points collected and reached higher than 80% agreement, meeting the standards for directly observed behavior assessment research (Cooper, Heron, and Heward, 1987).

Assumptions of ANOVA: Normality and homogeneity of variance. In order to examine the distribution of all continuous variables, a series of tests were conducted. All data was entered into a database platform that uses Statistical Package for the Social Sciences 15.0 (SPSS 15.0). Distributions of behavior assessments, performance, and Psychological variables were examined numerically by calculating the skewness, kurtosis, and their respective standard errors. Once calculated, ratios of skewness to the standard error of skewness, and kurtosis to standard error of kurtosis were examined to see if these data meet criteria for normality. Since the ratios were never higher than five, transformations were not used. Homogeneity of variance was checked

with sphericity tests. The p-values for each ANOVA never reached below $p = .05$, hence homogeneity of variance was assumed. Had sphericity not been shown, transformations or robust tests of equality, such as the Welch or Brown-Forsythe tests, would have been done (Tabachnik and Fidell, 2001).

Inferential Statistics

Attrition. In order to assess differences between those who completed and those who did not complete the class,*t*-test comparisons were done for all continuous variables. Sample differences on categorical variables were assessed with Pearson Chi-squares. Analyses were also conducted to compare participants who completed the class to identify differences between those who did ($n = 7$) and did not attend ($n = 9$) the follow-up session. Comparisons were done on all applicable continuous variables including age, number of children in the home, number of people that participants can tell anything to, amount of contact with these social supports, and pre-course scale scores. Scales included parenting skills, Experiential Avoidance, Total Distress and Depression.

Visual analysis: Line graphs of behavior assessment scores were created to display individual participant's scores on all six behavior assessments, as well as the overall average scores, at all time points (e.g., pre-course, post-course, generalization, and booster).

Mastery to criteria: Criteria for passing the course were 70% overall and at least 60% on each of the tools. A table was created to compare the percentage of people who met criterion for each tool and the overall average across each time point.

Participant comparisons: T-test comparisons were done to examine the influence of demographic variables on pre- and post-course behavior assessments. Variables included education (less than high school vs. at least a high school education or equivalent), annual household income (less than $30,000 vs. $30,000 or more) and ethnicity (Caucasian vs. remaining minority population).

Hypothesis 1: Participants would demonstrate pre- to post-course gains after participating in the BMAPS program. Given that there were 16 participants who completed the course and seven participants that completed the course as well as the follow-up session, pre-post gains were analyzed in two ways. First, pre-post course group differences among the 16 Completers were obtained using a repeated-measures ANOVA for each tool. Factors include the pre-course and post-course score for each parenting tool and the overall average. Among the seven Follow-Up Completers, post-hoc comparisons of repeated-measures ANOVAs with Bonferroni adjustments identified pre-post course differences. Factors included pre-test score, post-test score, maintenance probe, post-booster score for each tool and the overall average. In addition, percentage of participants who demonstrated mastery to criteria in each group was examined.

Hypothesis 2: Attenuated pre-post course gains would be associated with performance or psychological factors. Post-course gains did not meet minimum course criteria for all 16 Completers, so analyses were completed to see if this effect was mediated by performance factors (i.e., Homework Completion, Class Involvement), and/or psychological factors (i.e., Distress or Experiential Avoidance). First, *t*-tests compared group differences between those who did and did not meet course criterion

on performance and psychological measures. The contribution of other individual differences on course outcomes were examined with Chi-squares to determine whether categorical differences emerged between those who did or did not meet course criteria on the basis of gender-, education-, income-, or ethnic-group membership. Second, correlations were conducted to compare course outcomes on behavior assessments and both performance and psychological variables.

Multiple regression equations were rejected as appropriate tests to determine the influence of individual differences on course outcomes. In fact, there were too few participants to complete either multiple regression equations, repeated measures ANCOVAs, or a MANOVA with adequate power. In addition, significance in a multiple regression equation depends on statistically significant relationships between the independent variables and the dependent criterion variable, and significant and systematic correlations across predictors were absent between both pre- and post-course behavior assessments with either performance or psychological variables.

Hypothesis 3: Participants would maintain their skills to criteria three months later. Comparison of mastery-to-criteria levels, visual analysis of client scores, and post-hoc comparisons from repeated-measures ANOVAs, with Bonferroni adjustments, were conducted to assess significant post-course to maintenance probe losses. Factors included pre-test score, post-test score, maintenance probe, post-booster score for each tool and the overall average.

Hypothesis 4: Losses below course criteria at the maintenance session would be associated with performance or psychological factors. Seven participants completed the course and returned for the follow-up session with the probe, booster, and post-booster

testing. Only one participant maintained all skills to criterion at follow-up; hence, comparison of descriptive characteristics to those who did not maintain all skills would be difficult and inappropriate. Therefore, participants who maintained their overall average to criterion (Maintainers, *n* = 4) were compared against those who did not (non-Maintainers, *n* = 3). First, *t*-test comparisons between Maintainers and non-Maintainers were conducted on performance and psychological measures Second, correlations were assessed between course outcomes on behavior assessments and both performance and psychological variables. Second, correlations were conducted to compare maintenance outcomes on behavior assessments and both performance and psychological variables. The contribution of other individual differences on maintenance outcomes were also examined by comparing demographic characteristics of Maintainers to non-Maintainers. Again, there were too few participants and inadequate correlations to perform any other analyses.

Hypothesis 5: Participants would demonstrate gains after participating in a booster session. Comparison of mastery-to-criteria levels, visual analysis of client scores, and post-hoc comparisons from repeated-measures ANOVAs, with Bonferroni adjustments were conducted to assess significant maintenance probe to post-booster gains. Factors included pre-test score, post-test score, maintenance probe, post-booster score for each tool and the overall average.

Hypothesis 6: Attenuated booster gains to criteria would be associated with psychological or performance factors. Since booster gains did not meet criteria across tools for all seven participants, analyses were conducted to determine whether this effect was mediated by performance factors (i.e., Homework Completion, Class

Involvement), and/or psychological factors (i.e., Distress or Experiential Avoidance). First, *t*-tests compared differences on performance and psychological measures. Group membership was determined by whether the individual met criterion for the overall average, as well as all six behavior assessments (Full Criteria Gainers *n* = 5) or not (Partial Criteria Gainers *n* = 2). Second, correlations examined the relationships between course outcomes on behavior assessments with performance or psychological variables. The contribution of other individual differences on course outcomes were also examined by comparing demographic characteristics of Full Criteria and Partial Criteria Gainers. Again, there were too few participants and inadequate correlations to perform any other analyses.

Phase 2: Long-term Change and External Validity.

Descriptive Statistics

Mean, standard deviation, and range were calculated for continuous variables (e.g., age, number of children). Categorical variables (e.g., gender, ethnicity, income) were reported as percentages.

Inferential Statistics

Participant comparisons. Participants with different demographic characteristics, an additional parenting course, or type of charges were compared using *t*-tests to assess whether there were significantly different pre- or post- course behavior assessment scores. Demographic groups tested were less than or at least a high school equivalent education; household income less than or at least $30,000; and Caucasian or ethnic minority background. We also looked at whether individuals attended BMAPS

with a partner or not, as well as whether they took another parenting course in addition to the five course BMAPS series. Groups based on referral included those charged with drug offenses or not and those families charged with physical abuse or not.

Research Question 1: Are participant scores related to family reunification? Descriptive statistics were calculated to show the percentage of parents whose cases have been dispositioned and the reason for termination. Of the 22 participants, only two people were not reunified with their children. Comparisons of both pre- and post-course behavior assessment scores were completed using *t*-tests to detect differences between those who were and were not reunified with their children.

Research Question 2: Are participant scores related to recidivism? Pre- and post-course behavior assessment scores for reoffending parents were to have been compared to post-test scores for those that have not reoffended via usingt-tests. Since none of the 22 participants indicated that they were brought up on charges for non-traffic related offenses or child-related court charges after completion of the BMAPS course, there were no analyses to complete.

CHAPTER 4

RESULTS

Phase 1: Skill Maintenance

Demographic characteristics of the 27 participants who agreed to participate in the Maintenance phase of the study are as follows. The majority (74%) of participants were female and had a high school education or less (59%; *range* = less than 7th grade to Associate's degree). On average, participants were 33 years old (*SD* = 10, *range* = 20-57 years). Most participants were Caucasian American (70%), although nearly a third of the sample identified themselves as either Latino/Hispanic American (19%) or African American (11%). Parents reported, on average, that they have two children (SD = 1.13, *range* = 1-5), although most parents (85%) did not have custody of any of their children and one parent (4%) had custody of only one child at the pretest session. The majority (70%, range = 0-6) of parents felt they could tell at least two people in their lives "anything," and most (74%) talked to their social supports several times per week (range: once every few months to several times per week). Some participants (22%) attended other CPS referred parenting classes that emphasized other parenting skills, such as play skills and choices, as well as punishment techniques such as time out, natural consequences, and logical consequences.

Attrition rates were high. Of the original 27 participants, 19 (70%) completed the course and behavior assessments. Only 16 (59%) completed all psychological assessments before leaving the post-course session. Only seven (26%) returned for the follow-up session, which created a 74% overall rate of attrition from start to the follow-up

session. Of note, five of these Attritors (19% of the 27) agreed to participate in the follow-up one week prior to the review, but did not; two (7%) others were incarcerated.

Participant comparisons: Demographics, Other parenting classes, and Attrition

Participant comparisons were conducted using *t*-tests to look for pre- and post-course differences on behavior assessments while comparing participants based on education, income, and ethnicity. Participants who completed high school (M = 33.27, SD = 8.04) had a higher pre-course overall average, $t(14) = 2.72$, $p = .02$, than did those with less than a high school education (M = 20.80, SD = 9.60); however, no significant differences were found on other pre-course or post-course scales. Participants with an average household income of at least $30,000 ($M = 63.20$, $SD = 31.25$) had lower average post-course Redirect-Reinforce scores, $t(14) = 2.16$, $p = .05$, than participants with household incomes of $30,000 or less ($M = 87.27$, $SD = 14.45$); however, no significant differences were found on any pre-course or other post-course scales. Caucasian participants ($M = 79.71$, $SD = 53.50$) scored higher on the post-course Stay Close assessment, $t(14) = 2.66$, $p = .02$, than participants of minority ethnicity ($M = 53.50$, $SD = 24.75$); however, no significant differences were found on any pre-course or other post-course scales.

Comparisons between parents who have or have not been in additional parenting courses besides BMAPS were also completed using *t*-tests. No significant differences were found on pre-course behavioral assessment scores. Parents who were only in the BMAPS program ($M = 84.79$, $SD = 7.81$) scored higher on the post-course Stay Close scale, $t(5) = 3.10$, $p = .03$, than did the participants who also took other classes

(*M* = 60.80, *SD* = 16.63). There were no significant group differences session. Of note, five of these Attritors (19% of the 27) agreed to participate in the follow-up one week prior to the review, but did not; two (7%) others were incarcerated.

Participant comparisons: Demographics, Other parenting classes, and Attrition

Participants differences on behavior assessments were assessed using *t*-tests to look for pre- and post-course differences based on education, income, and ethnicity. Participants who completed high school (M = 33.27, SD = 8.04) had a higher pre-course overall average, $t(14) = 2.72$, $p = .02$, than did those with less than a high school education (M = 20.80, SD = 9.60); however, no significant differences were found on other pre-course or post-course scales. Participants with an average household income of at least $30,000 (*M* = 63.20, *SD* = 31.25) had lower average post-course Redirect-Reinforce scores, $t(14) = 2.16$, $p = .05$, than participants with household incomes of $30,000 or less (*M* = 87.27, *SD* = 14.45); however, no significant differences were found on any pre-course or other post-course scales. Caucasian participants (*M* = 79.71, *SD* = 53.50) scored higher on the post-course Stay Close assessment, $t(14) = 2.66$, $p = .02$, than participants of minority ethnicity (*M* = 53.50, *SD* = 24.75); however, no significant differences were found on any pre-course or other post-course scales.

Pre- and post-course behavior assessment scores were also compared for parents who have been in BMAPS against parents who have been in other parenting courses as well as BMAPS. No significant differences were found on pre-course scores. Parents who were only in the BMAPS program (*M* = 84.79, *SD* = 7.81) scored higher on

the post-course Stay Close scale, $t(5) = 3.10$, $p = .03$, than did the participants who also took other classes ($M = 60.80$, $SD = 16.63$). There were no significant group differences

Table 2

Descriptive Statistics

	Pretest Session[a]			Post-Course Session[b]			Maintenance Probe[c]			Booster[c]		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Behavior Assessments												
Set Expectations	45.19	17.13	10- 80	87.21	10.59	60-100	55.00	13.83	29- 64	79.71	8.96	64- 86
Use Reinforcement	34.81	28.00	0-100	90.32	19.54	33-100	61.71	35.81	33-100	78.43	31.65	33-100
Pivot	20.74	18.80	0- 60	87.37	20.23	20-100	77.14	26.90	20-100	88.57	15.74	60-100
Redirect-Reinforce	33.04	24.06	0-100	79.89	22.81	14-100	67.29	26.86	29-100	89.71	13.77	71-100
Stay Close	39.11	16.51	7- 72	78.47	14.94	36- 93	68.57	12.15	50- 80	82.86	9.51	70-100
Use Contracts	22.07	17.16	0- 67	76.79	13.80	44-100	62.00	15.75	44- 78	68.43	13.66	44- 89
Overall Average	32.44	10.61	11- 59	83.21	10.33	61- 99	65.43	12.57	47- 82	81.43	9.52	68- 96
Psychological Variables												
Experiential Avoidance	53.15	8.16	39- 67	55.56	6.14	45- 64	58.14	4.53	52- 67		NA	
Average Distress	1.85	0.41	1.04-2.92	1.64	0.47	1.16-2.68	1.47	0.30	1.16-2.08		NA	
Social supports	2.56	1.63	0- 6		NA			NA			NA	
Use of Social Supports	5.33	1.52	0- 6		NA			NA			NA	
Performance Variables												
Course Participation		NA		80.00	21.60	33-100		NA			NA	
% Homework turned in		NA		97.22	8.09	75-100		NA			NA	

Note. $^{*}p \leq .05$, $^{**}p \leq .01$, $^{\ddagger}p \leq .001$

NA = Not applicable—Data not collected for that scale at that time point. Ratio of skewness and kurtosis to their respective standard error was below 10 for all Behavioral, Psychological, and Performance Variables. [a]$n = 27$, [b]$n = 19$ for Behavior Assessments, $n = 16$ for Psychological Variables, [c]$n = 7$.

Table 3

ANOVA Results

Group Means, Sphericity, and *F*-values

	Pre-Course		Post-Course		Maintenance		Booster				
Behavioral Assessment	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Sphericity[a]	*F*(3,4)	Partial η^2
Set Expectations	37.14	13.80	86.86	7.90	55.00	13.83	79.71	8.96	NS	21.35**	.94
Use Reinforcement	27.29	21.73	78.57	28.47	61.71	35.81	78.43	31.65	NS	5.80	.50
Pivot	11.43	10.69	85.71	15.12	77.14	26.90	88.57	15.74	NS	95.90‡	.99
Redirect-Reinforce	32.00	9.75	69.71	27.84	67.29	26.86	89.71	13.77	NS	10.18**	.94
Stay Close	35.86	17.42	83.43	11.63	68.57	12.15	82.86	9.51	NS	8.31*	.86
Use Contracts	34.86	19.95	81.14	8.32	62.00	15.75	68.43	13.66	NS	6.91*	.84
Overall Average	29.71	11.59	80.86	11.96	65.43	12.57	81.43	9.52	NS	30.99‡	.96

[a]Mauchly's Test of Sphericity, Greenhouse-Geisser

Post-hoc Pairwise Differences with Bonferroni Adjustments

Behavioral Assessment	Pre-Post	Pre-Maintenance	Pre-Booster	Post-Maintenance	Maintenance-Booster
Set Expectations	49.71**	17.86	42.57**	-31.86*	24.71*
Use Reinforcement	51.29	34.43	51.14	-16.86	16.71
Pivot	74.29‡	65.71**	77.14‡	- 8.57	11.43
Redirect-Reinforce	37.71	35.29	57.71**	- 2.43	22.43
Stay Close	47.57**	32.71*	47.00**	-14.86	14.29
Use Contracts	46.29**	27.14	33.57	-19.14	6.43
Overall Average	51.14**	35.71*	51.71‡	-15.43 (p =.09)	16.00 (p = .06)

Note. *$p \leq .05$, ** $p \leq .01$, ‡$p \leq .001$

Table 4

Correlations between Behavior Assessments and Other Variables

	Performance Variables		Psychological Variables					
Behavior Assessment	Partic[d]	HW[e]	Social Supports	Freq Support[f]	E-Pre[g]	D-Pre[h]	D-Post[i]	D-FU[j]
Pre-Course[a]								
Set Expectations	NS	NS	NS	NS	NS	NS	NS	.83*
Use Reinforcement	NS	NS	NS	NS	NS	NS	NS	NS
Pivot	NS	NS	NS	NS	NS	NS	NS	NS
Redirect-Reinforce	NS	NS	-.39*	NS	NS	NS	NS	NS
Stay Close	NS	NS	NS	NS	NS	NS	NS	NS
Use Contracts	NS	NS	NS	NS	NS	NS	NS	NS
Overall Average	NS	NS	NS	NS	NS	NS	NS	NS
Post-Course[b]								
Set Expectations	NS	.64**	NS	NS	NS	NS	NS	NS
Use Reinforcement	NS	NS	NS	NS	NS	NS	NS	NS
Pivot	NS	.47*	NS	NS	NS	NS	NS	NS
Redirect-Reinforce	NS	NS	NS	NS	NS	NS	NS	NS
Stay Close	NS	.59**	NS	NS	.46*	NS	NS	NS
Use Contracts	NS	NS	NS	NS	NS	NS	NS	NS
Overall Average	NS	.53*	NS	NS	NS	NS	NS	NS
Follow-up: Maintenance[c]								
Set Expectations	NS	NS	NS	NS	NS	NS	NS	-.82**
Use Reinforcement	NS	NS	NS	NS	NS	NS	NS	NS
Pivot	NS	NS	NS	NS	NS	NS	NS	NS
Redirect-Reinforce	NS	NS	NS	NS	NS	NS	NS	NS
Stay Close	NS	NS	-.81*	NS	NS	-.80*	NS	NS
Use Contracts	NS	NS	NS	NS	NS	NS	NS	NS
Overall Average	NS	NS	NS	NS	NS	NS	NS	NS
Follow-up: Booster[c]								
Set Expectations	NS	.77*	NS	NS	NS	NS	NS	NS
Use Reinforcement	.89**	NS	NS	NS	.88**	NS	NS	NS
Pivot	NS	NS	NS	NS	NS	NS	NS	NS
Redirect-Reinforce	NS	NS	NS	NS	NS	NS	NS	NS
Stay Close	NS	NS	NS	NS	NS	NS	NS	NS
Use Contracts	NS	NS	NS	NS	NS	NS	NS	NS
Overall Average	NS	NS	NS	NS	NS	NS	NS	NS

Note. $*p \leq .05$, $** p \leq .01$

[a]$n = 27$, [b]$n = 16$, [c]$n = 7$, [d] Participation Level, [e] Homework, [f] Frequency of Social Support Contact, [g]Experiential Avoidance, [h] Distress Pre-Course Pre-Course, [i] Distress Post-test, [j] Distress Follow-up.

for the remaining post-course scores. Appropriate comparisons could not be done for Maintenance and Booster scores because only one of the seven participants who attended the maintenance session had attended parenting classes with another agency prior to the BMAPS class.

Attrition analyses compared participants who completed the course (Completers) to those who did not (Non-completers). The only significant difference found between completers and non-completers on continuous variables was on pre-course Experiential Avoidance, $t(25) = 2.24$, $p < .05$. Completers ($M = 50.44$, $SD = 7.40$) reported being more compelled to avoid their thoughts and immobilized than non-completers ($M = 50.44$, $SD = 7.73$), who were more accepting of their private experiences. Analyses of categorical variables revealed that the ethnic distribution of completers to non-completers was disproportionate, $\chi^2(2) = 6.77$, $p < .05$. The majority of Caucasian Americans ($n = 14$, 74%) completed the course, whereas a minority of both Hispanic Americans ($n = 2$, 40%) and African Americans ($n = 0$, 0%) who signed up for the study completed the course.

Analyses were also conducted to compare Follow-up Completers ($n = 7$) and Follow-up Non-completers ($n = 9$). No differences were found on categorical variables. The only difference for post-course behavior assessments was that Follow-up Completers ($M = 34.86$, $SD = 19.94$) had higher scores on Use Contacts, $t(14) = -2.28$, $p < .05$, than Follow-up Non-completers ($M = 14.67$, $SD = 15.56$). No differences were found between Follow-up Completers and Follow-up Non-completers on psychological variables

Hypothesis 1: Participants will demonstrate pre-course to post-course gains

Pre- to Post-course gains were analyzed among both Completers and Follow-up Completers. First, pre-post course group differences were examined among the 16 Completers using repeated measures ANOVAs. Among the seven Follow-Up Completers, post-hoc comparisons from repeated-measures ANOVAs, with Bonferroni adjustments, were used to find pre-post course differences. In addition, percentage of participants who demonstrated mastery to criteria in each group was examined.

Examination of pre- to post-course changes among Completers clearly indicated statistically significant change. Repeated measures ANOVAs indicated significant pre-post changes to the $p < .001$ level for all tools and the overall average. (see Table 5). Effect sizes were large, ranging from Partial $\eta^2 = .70$ for Stay Close to .92 for the Overall Average.

Pairwise comparisons with Bonferroni Adjustments from one-way repeated-measure ANOVAs (see Table 3) assessed pre-post course gains among Follow-up Completers. Statistically significant pre-post differences were realized on averages for Use Contracts, Stay Close, Pivot, and the Overall Average score. Of the two subscales without statistically significant changes, large and clinically significant pre-post differences were realized (i.e., 37-51 point gains on a 0-100 scale). A clinically significant change for a typical parent might show itself from a parent who merely allowed children who are cooperating to crash cars play with one another at the beginning of the course, to the end of the course, where this same parent may have praised the children and refrained from coercion, without providing a timely and appropriate consequence (e.g., play with the kids too, pat on the back, offer ice cream).

Clinical significance on Redirect-Reinforce might manifest in that a parent started the course by stopping a young child from endangering an infant, followed by reprimands and a lecture at the beginning of the course, to stopping the endangerment without saying a word and redirecting the child into a different activity without performing the required tasks of re-prompting or reinforcement for more appropriate behavior. The lowest effect size was for Use Reinforcement (Partial η^2 = .50), while all the other effect sizes ranged from Partial η^2 = .84-.99. Figures 1-7 shows behavior assessment scores among Follow-up Completers across time.

Table 5

Pre- to Post-course Behavioral Assessment ANOVA Results

	Pre-Course		Post-Course				
	Mean	SD	Mean	SD	Change	*F*(1,15)	*Partial* η^2
Behavioral Assessment							
Set Expectations	37.14	13.80	86.86	7.90	47.00	58.03‡	.80
Use Reinforcement	27.29	21.73	78.57	28.47	57.87	46.86‡	.76
Pivot	11.43	10.69	85.71	15.12	70.00	105.00‡	.88
Redirect-Reinforce	32.00	9.75	69.71	27.84	52.56	43.25‡	.74
Stay Close	35.86	17.42	83.43	11.63	38.69	34.66‡	.70
Use Contracts	34.86	19.95	81.14	8.32	53.81	103.20‡	.87
Overall Average	29.71	11.59	80.86	11.96	53.25	172.16‡	.92

Note. ‡$p \leq .001$

Table 6 shows the percentage of Completers and Follow-up Completers who met minimum course criterion for passing the behavior assessments at all possible measurement points. Again, course criteria is 70% overall and at least 60% on each of the tools. Between 88-100% of Completers met individual criterion for each scale. In total, eleven (69%) of the 16 Completers met full course criteria. By comparison, 71-100% of Follow-up completers met criterion for individual scales. In total, five (71%) of Follow-up Completers met post-course criterion.

Table 6

Percentage of Scores that Met Course Criteria,[a] by Time Point

	Post Completers	Follow-up Completers		
Behavioral Assessment		Post	Maintenance	Booster
Set Expectations	100	100	57	100
Use Reinforcement	88	71	43	71
Pivot	94	100	86	100
Redirect-Reinforce	94	86	43	100
Stay Close	88	100	86	100
Use Contracts	94	100	43	86
Overall Average	88	86	43	86

[a]Criteria for passing the course is 70% Overall Average, 60% on other scales.

Hypothesis 2: Attenuated gains are due to performance or psychological factors

Given that not all participants met course criteria, analyses were completed to assess whether attenuated behavior assessments were related to either performance or Psychological factors. Comparisons, using *t*-tests, were done among the Completers who did or did not meet course criteria to see if performance or psychological variables may have accounted for this attenuation. Chi-square tests looked at the influence of demographic variables. Correlations were conducted between behavior assessment scores and either performance or psychological variables.

Completers who passed course criteria did not have significantly higher group average on performance and psychological measures than did those who did not meet course criteria. There were no significant differences on in class participation, homework, social support, amount of contact with social supports, pre-course Experiential Avoidance, and pre- or post-course Distress. Chi-square tests failed to find significant differences on gender, education or income between Completers who did or

did not pass the course to criteria. Tests to examine the effect of ethnicity were not conducted, given that only two (12%) of Completers were in the ethnic minority.

Systematic patterns of correlation between behavior assessments and either performance or psychological variables were not found (see Table4). Pre-course behavior assessments by and large were unrelated to pre-course variables. An inverse correlation between Redirect-Reinforce and number of social supports showed that the more social supports parents reported having, the less they demonstrated the ability to block dangerous behavior, then redirect, give additional prompts, and reinforce an appropriate behavior prior to the course. By contrast, most post-course behavior assessments had small to medium-sized correlations with the amount of homework that was turned in. The more homework parents completed, the better they used the Set Expectations, Pivot, and Stay Close tools, and their Overall Average was higher. A direct relationship was also found between Stay Close and pre-course Acceptance such that the more parents said they tolerate their private experiences and take action, the better their ability to listen and converse with their child without using coercion.

Hypothesis 3: Participants will maintain their skills to criteria three months later

After completion of the full course—including remedial sessions—only one of the five participants who met criteria maintained all skills to criteria. All participants still met criterion for the Pivot tool at the maintenance probe, whereas nearly all of the participants still met criteria for the Use Reinforcement and Stay Close tools when the maintenance probe was administered. More than half of the participants still met course passing criteria on Set Expectations, Redirect-Reinforce, and their Overall Average.

Nearly half still met criteria on Use Contracts. Refer to Figures 1-7 for graphs that show behavior assessment scores for each participant and Table 6 to see the percentage of participants who met criterion over time.

The majority of participants (71%) realized losses on their Overall Average score (see Figure 1). One of the two participants with an improved Overall Average retook Use Reinforcement and Redirect-Reinforce in remedial sessions; both practiced these tools together before the remedial session to make sure her performance would meet course criteria in order to get custody of the children.

Hypothesis 4: Losses below criteria are due to performance or psychological factors

Since only one participant maintained all skills to criterion, comparison of descriptive characteristics to those who did not maintain each tool would be inappropriate. Hence, participants who maintained an Overall Average to criterion were compared against those who did not. Maintainers had a household income of >$30,000 per year, whereas most of the participants who did not (75%) had a household income of <$15,000 per year; the other (25%) had a household income of $30-50,000 per year. No systematic differences were found on gender, ethnicity, income, number of children, number of or location of the children. Of the psychological variables, there were no differences on Experiential Avoidance, Distress, or social support variables.

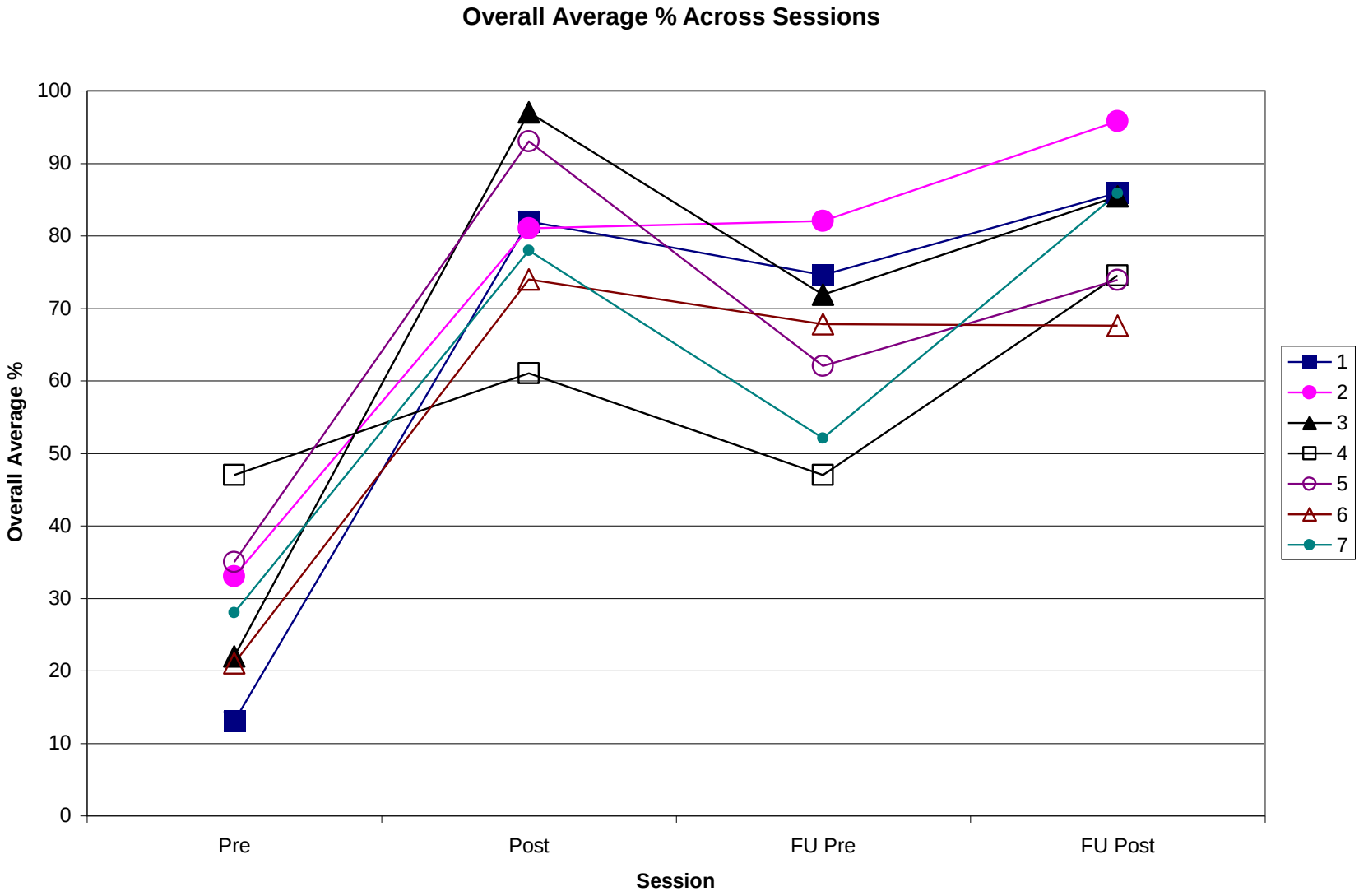

Figure 1. Overall Average % score across sessions.

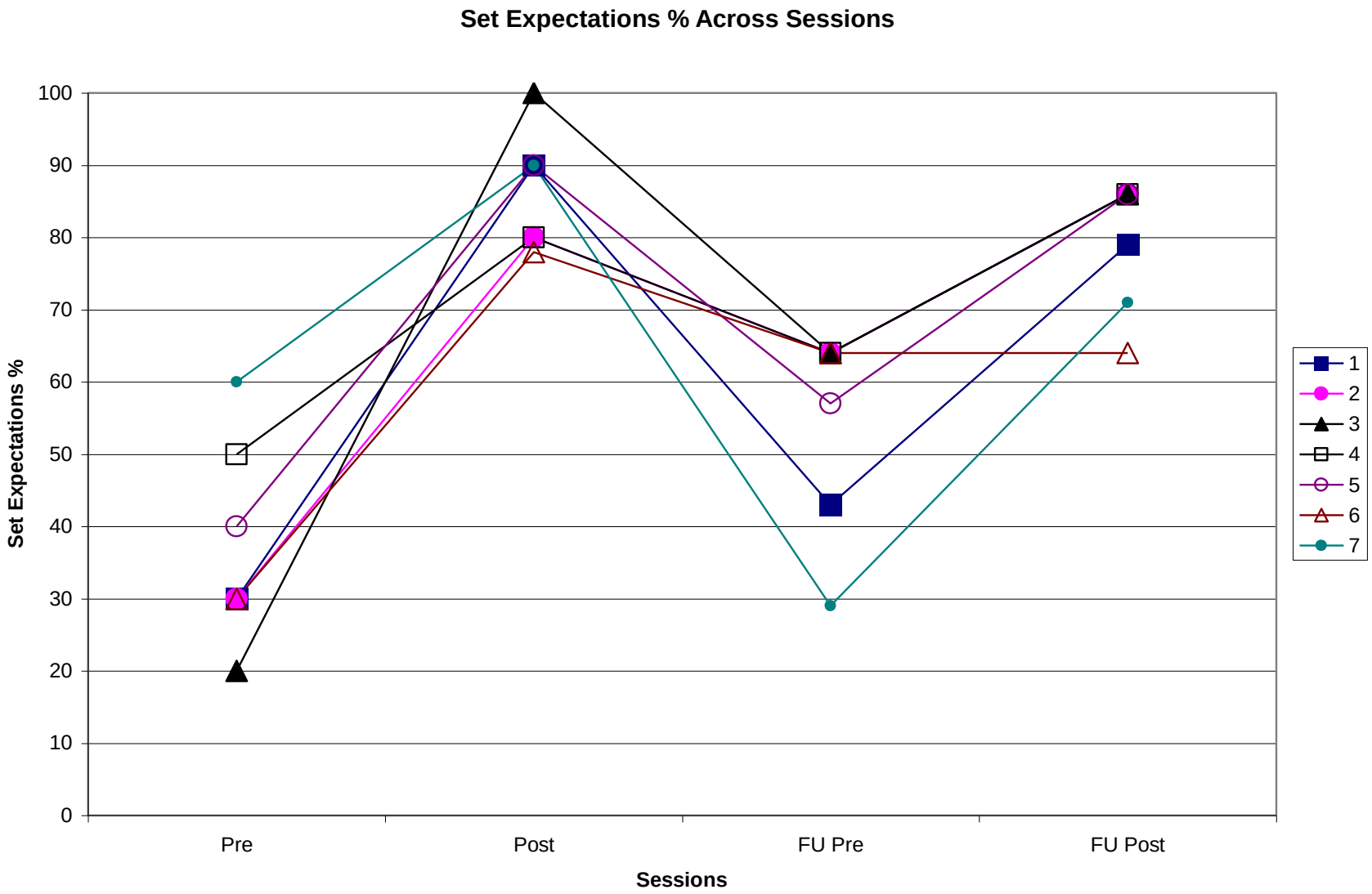

Figure 2. Set Expectations % score across sessions.

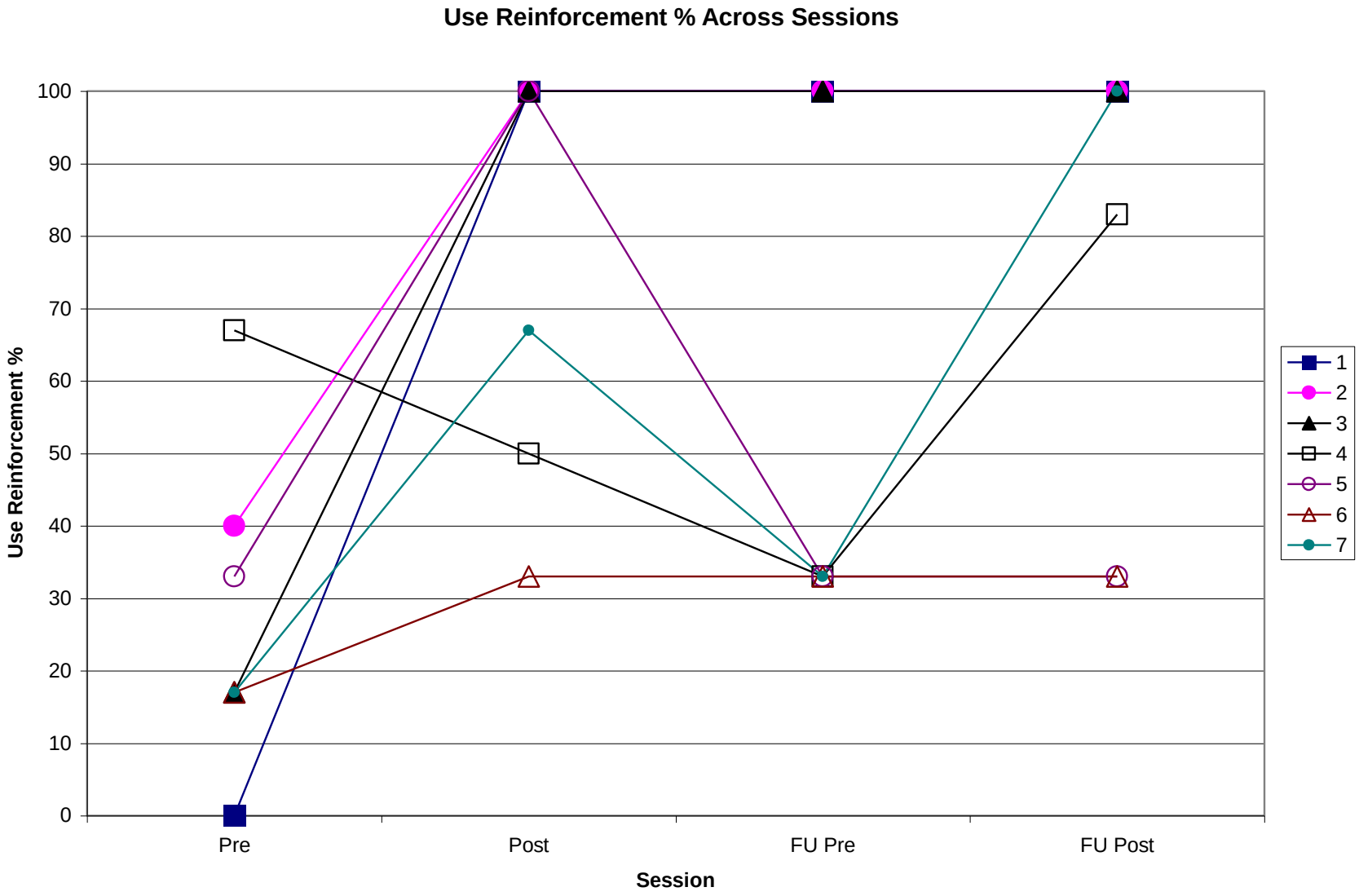

Figure 3. Use Reinforcement % score across sessions.

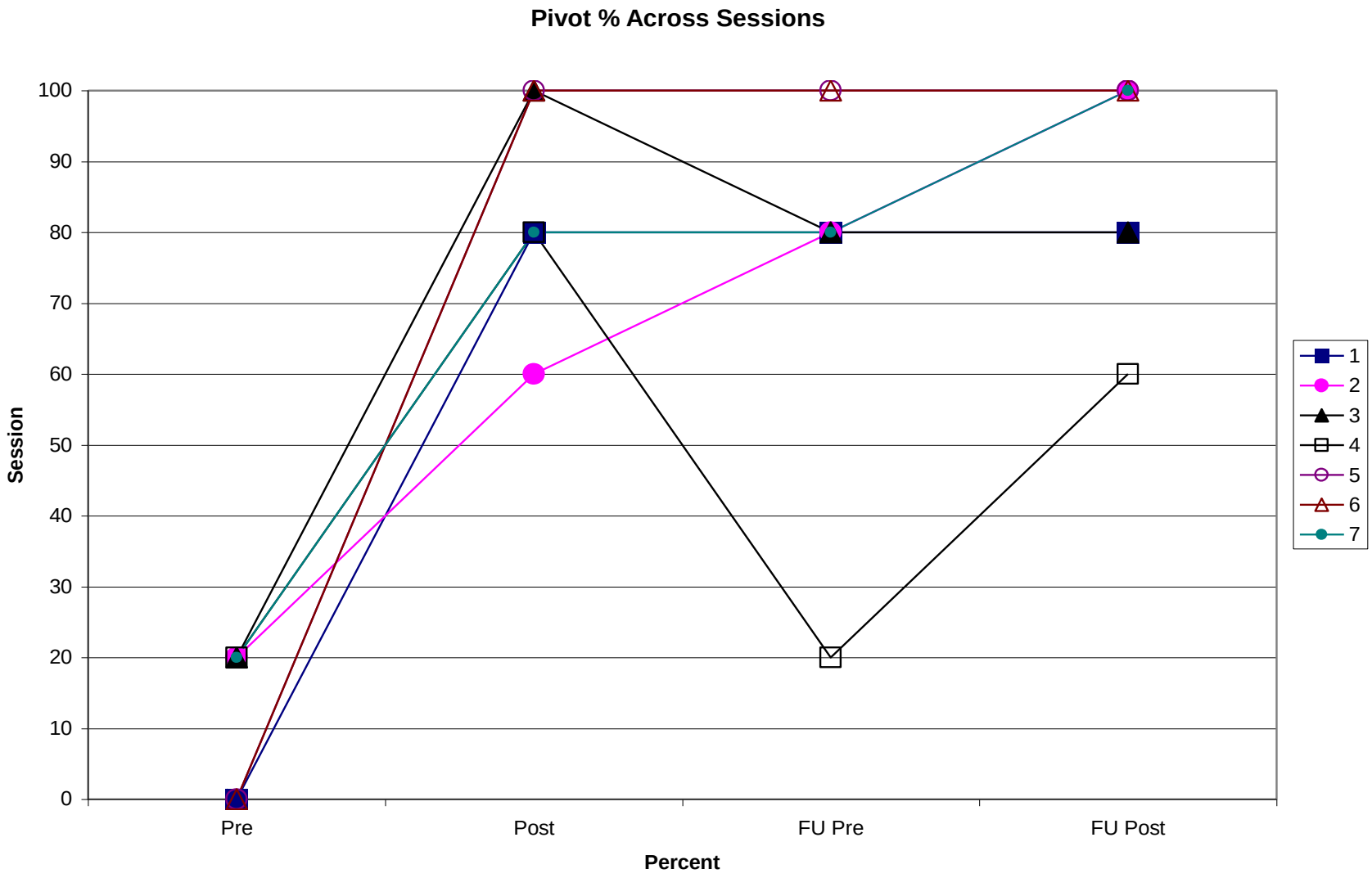

Figure 4. Pivot % score across sessions.

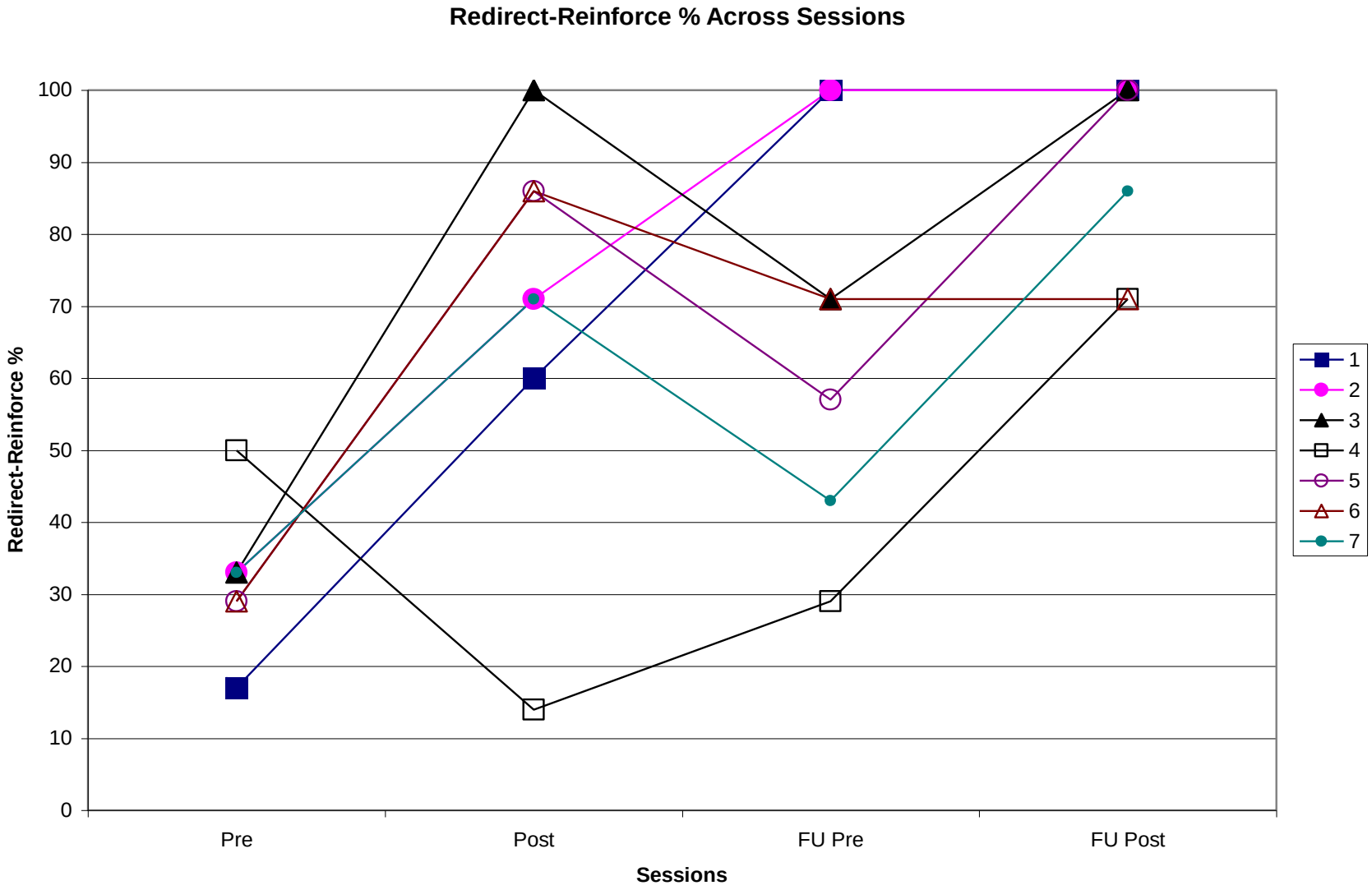

Figure 5. Redirect-Reinforce % score across sessions.

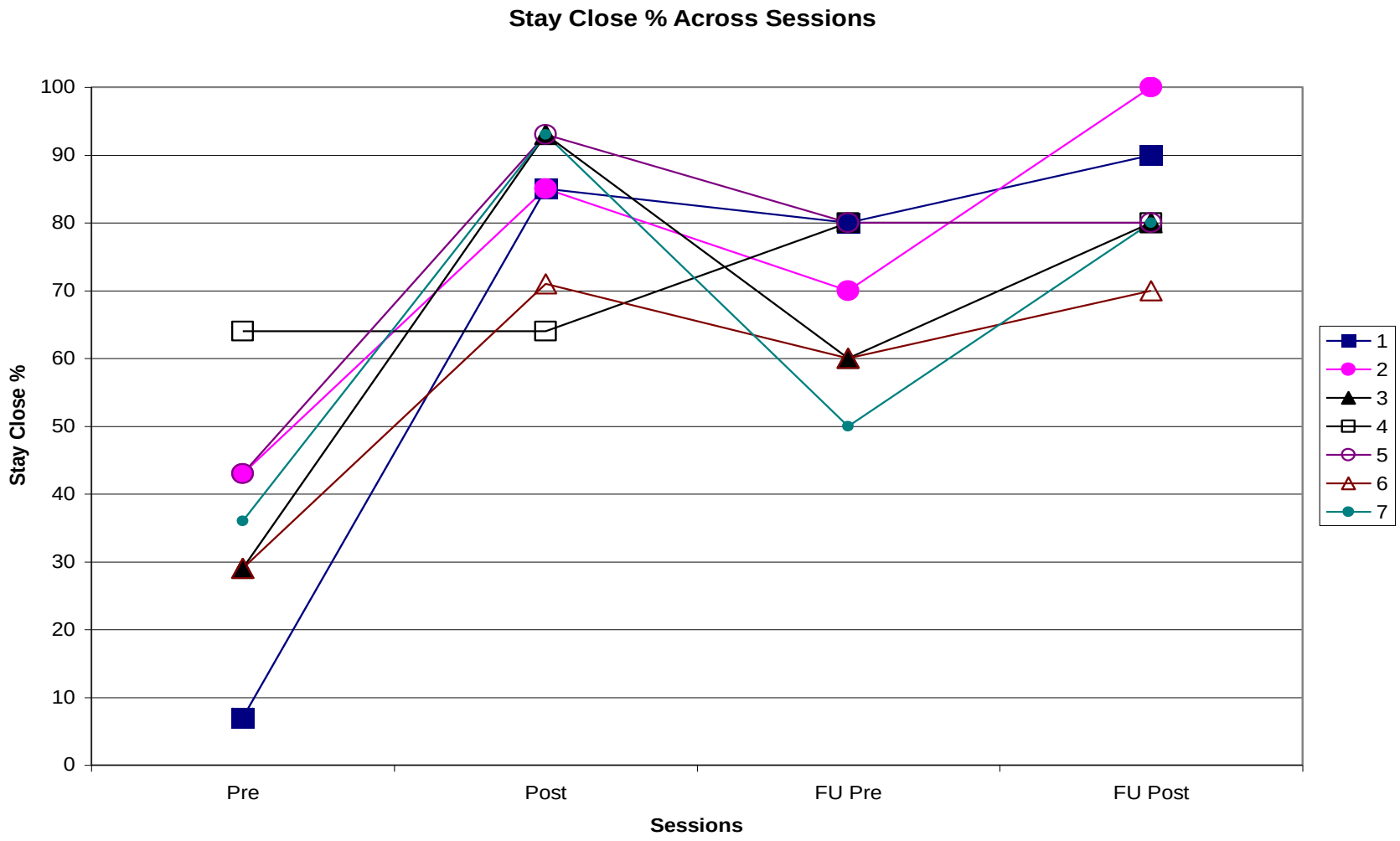

Figure 6. Stay Close % score across sessions.

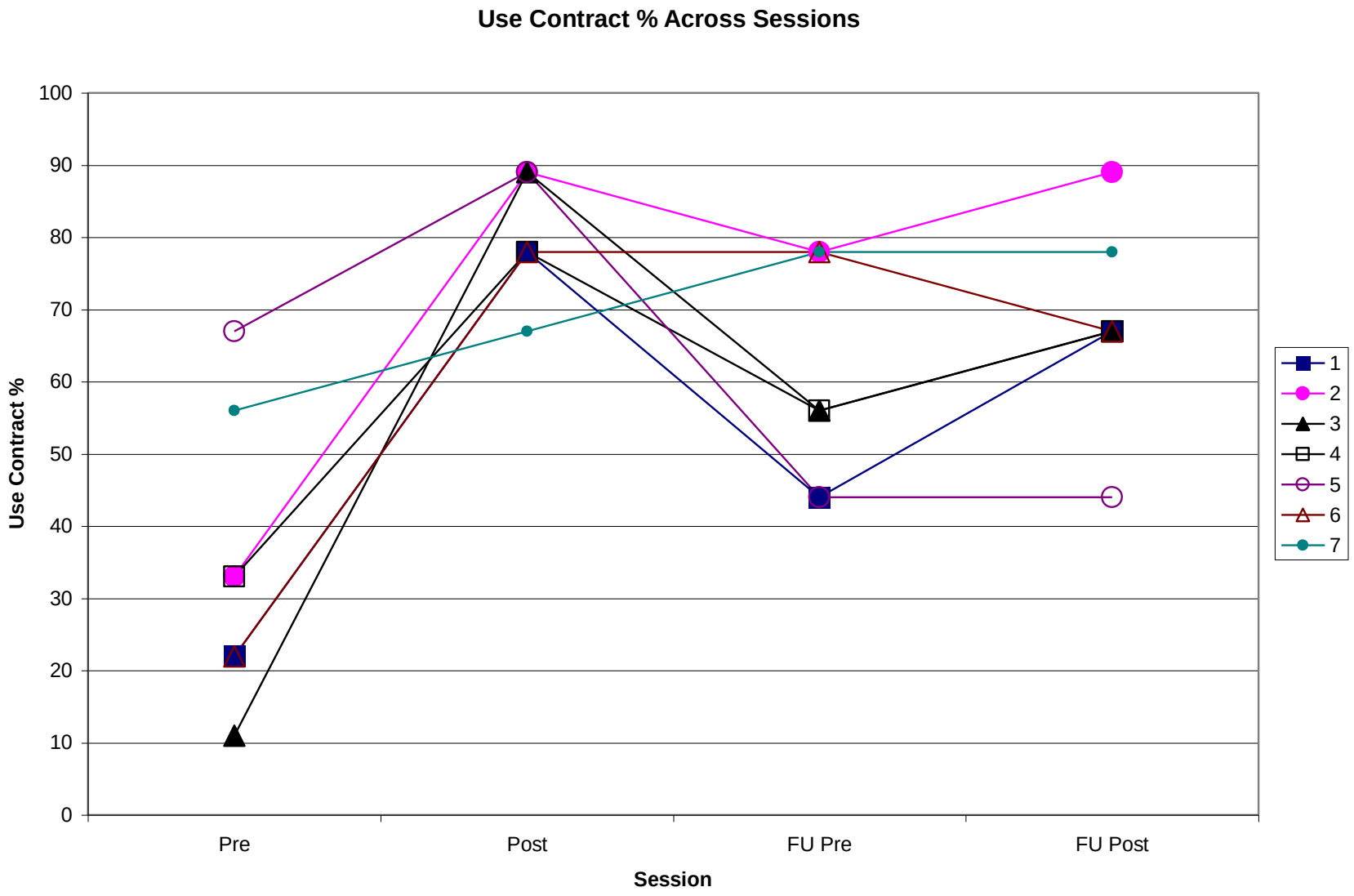

Figure 7. Use Contracts % score across sessions.

No systematic correlations were found between behavior assessment scores collected during the maintenance probe and either performance or psychological variables (see Table 4). Stay Close was inversely related to Number of Social Supports and pre-course Distress; hence, the higher a parent's distress and the more social support a parent reported having, the less their ability to listen and be supportive without being coercive. Follow-up Distress had an inverse relationship only with Set Expectations, where the more distress a parent reported, the less they set expectations for a chores program while being firm yet positive.

Hypothesis 5: Participants will demonstrate gains after participating in a booster session

More participants met course criteria after the Booster session than met criteria during the maintenance probe or even post-course testing. Six of seven participants met the Overall Average criterion of at least 70%, whereas the seventh nearly met criterion with 68%. All participants met minimum criteria for Set Expectations, Pivot, Redirect-Reinforce, and Stay Close. More than two-thirds of participants met criteria for Use Reinforcement and Use Contracts. Refer to Figures 1-7 for graphs that show scores for each participant and Table 6 to see the percentage of participants who met criterion over time.

Statistically significant maintenance-booster differences were realized for Set Expectations only, although the significance level (p = .06) on the Overall Average score showed a clear trend toward overall statistically significant change (see Table 3). Taken in context of the average skill losses at the time of the maintenance probe, the booster session still showed utility. Average gains made from the booster session were roughly

equivalent to the average losses realized during the 3 months after the course ended for each of the other tools. Notable exceptions included post-booster scores on Redirect-Reinforce, which realized a 20 point net gain, and Use Contracts, which realized a net 13 point loss.

Examination of gains from pre-course to booster testing showed statistically significant results were realized on the Set Expectations, Pivot, Redirect-Reinforce, and Stay Close tools, as well as the Overall Average. There were still large and clinically significant changes for Use Reinforcement (51.14) and Use Contracts (33.57).

Hypothesis 6: Attenuated booster gains are due to performance or psychological factors

Only two participants did not meet full mastery to criteria. The only one that did not meet the overall average criterion was a female with less than a high school education, who made less than $15,000 per year. No systematic differences were found on ethnicity, number of children, number of or location of the children. Of the psychological variables, there was no difference on Experiential Avoidance, pre-course Distress, post-course Distress, maintenance probe Distress, number of trusted social supports, or amount of contact with trusted social supports.

There were no systematic correlations between behavior assessments after the booster and either performance or psychological variables (see Table 4). The more homework turned in during the course, the higher a parent's ability was to Set Expectations after the booster. Parents showed they could Use Reinforcement while ignoring annoying behavior better if they had higher levels of participation during the course, but worse with higher levels of pre-course Experiential Avoidance.

Phase 2: External Validity

Demographic characteristics of the 22 participants who participated in this second phase are as follows, the majority were female (59%) and had at least a high school education (91%; *range* = some high school to graduate degree). Household income was evenly distributed with exactly half of the participants reporting an annual household income of $30-50,000 (*range* = <$15,000 to >$75,000). On average, participants were 34 years old (*SD* = 7 years; *range* = 22-53 years). Most participants were Caucasian American (77%), whereas other participants identified as either Latino/Hispanic American (14%), African American (5%), or Native American (5%). Nearly two-thirds (64%) of parents who agreed to participate went through the parenting program with their spouse or partner. Parents reported an average of two children (*SD* = 0.80; *range* = 1-4), ages 2-15 years (*M* = 6 years, *SD* = 3.17 years).

Data were also obtained on participant interactions with the justice system. Nearly a quarter (23%) of participants stated they were referred to BMAPS for multiple reasons. Over half of participants were initially referred because of drug-related offenses (55%) and a third (36%) were referred for suspected physical abuse of the child, which was perpetrated either by the parent or parent's partner. By contrast,18% were referred for neglect and 9% denied any knowledge of why they were referred. Other court-mandated services that our participants received included: substance abuse services (46%), offense-specific classes (14%; e.g., shaken-baby syndrome prevention), and/or psychotherapy (9%). Four participants (18%) participated in other parenting classes that emphasize parenting skills such as play and choices, as well as punishment techniques such as time out, natural and logical consequences. Two

parents completed the additional parenting class before the BMAPS course, the other two went afterward.

Table 7

Phase 2 Descriptive Statistics: Pre- and Post-course Behavior Assessments

	Pre-Course			Post-Course		
	Mean	SD	Range	Mean	SD	Range
Behavior Assessment						
Set Expectations	43.10	22.27	8- 75	82.15	15.81	42-100
Use Reinforcement	42.45	31.72	0-100	93.30	13.69	50-100
Pivot	13.75	19.79	0- 75	90.00	22.94	0-100
Redirect-Reinforce	43.85	25.05	0- 88	83.30	20.58	29-100
Stay Close	47.50	18.60	10- 90	81.00	18.89	30-100
Use Contracts	28.55	23.26	0- 86	67.15	24.72	0-100
Overall Average	36.45	13.09	12- 67	83.15	12.55	48-100

At the time of the interview (1-3 years post completion of the BMAPS course) all the participants' cases were resolved with the justice system. Most participants (82%) had full custody of their children at the time of the interview, either with or without their partner in the house. Other parents shared custody (9%) or did not have custody (9%). In sum, BMAPS parents who participated had a 91% reunification rate. Of the other two parents, one voluntarily gave up parenting rights, whereas the other's rights were terminated by the court when she was incarcerated.

Participant Comparisons: Demographics, Other classes, Offense

Pre- and post-course behavior assessment scores were compared with *t*-tests based on parent education, income, and ethnicity. Participants who have at least a high school diploma or equivalent showed a trend toward higher scores on the overall average, although no significant pre-course differences were realized on any of the subscales. By contrast, parents who had at least a high school-level education scored

higher after the course on two out of six tools (e.g., Stay Close, Set Expectations), as well as on the Overall Average (see Table 8). Participants with an average household income of at least $30,000 had higher pre-course scores on one of the six subscales (Stay Close) and their Overall Average; however, no significant differences were found on other pre-course or any post-course scales (see Table 8). There were no significant pre- or post-course differences between ethnic minority participants and Caucasian participants.

Pre- and post-course differences between participants based on either attending other courses or attending class with their partner. Parents who attended another classes previously (M = 64.5, SD = 30.41) had a higher score $t(18) = 2.64$, $p = .02$, than parents who have not taken other courses (M = 24.56, SD = 47.00) only for pre-course Use Contracts; however, no significant differences were found on other pre-course or any post-course scales. Parents who attended BMAPS with their partner (M = 33.27, SD = 8.04) scored higher on pre-course Use Contracts, $t(18) = 2.15$, $p = .05$, than parents who did not attend with their partner (M = 16.00, SD = 14.27); however, no significant differences were found on other pre-course or any post-course scales.

Parents with different referral reasons were compared using t-tests. Parents referred due to drug offenses (M = 19.00, SD = 14.22) scored lower on pre-course Use Contracts $t(18) = 2.56$, $p = .02$, than parents referred for other reasons (M = 42.88, SD = 27.58); however, no significant differences were found on other pre-course or any post-course scales. There were no significant differences between parents referred for physical abuse and those referred for other reasons.

Table 8

Participant Comparisons: Education and Income t-tests

Minimum High School Education

	No		Yes		
	Mean	SD	Mean	SD	*t*(18)
Pre-Course					
Overall Average	20.00	11.31	38.28	12.19	2.02 (p=.06)
Post-Course					
Set Expectations	48.50	9.19	85.89	11.24	4.51‡
Stay Close	50.00	28.28	84.44	15.04	2.88**
Overall Average	65.00	24.04	85.17	9.94	2.42*

Annual Household Income >$30,000

	No		Yes		
	Mean	SD	Mean	SD	*t*(18)
Pre-Course					
Stay Close	26.67	16.91	51.18	16.91	2.34*
Overall Average	21.33	8.33	39.12	12.02	2.43*

Note: $^{*}p \leq .05$, $^{**}p \leq .01$, $^{\ddagger}p \leq .001$, $n = 20$.

Research Question 1: Are participant scores related to family reunification?

Participant behavior assessment scores were by and large unrelated to family reunification. Only two parents were not reunited with their children after BMAPS involvement in this sample. Participant comparisons indicated that there were no systematic differences on either pre- or post-course behavior assessments between families who were or were not reunited. The only difference found was that reunified parents scored lower ($M = 24.56$, $SD = 19.53$) than parents whose families were not reunified ($M = 64.50$, $SD = 21.50$) on the Use Contracts pre-test, $t(18) = 2.46$, $p = .02$.

An analysis of post-test scores for the non-reunified parents revealed interesting results. One of the non-reunified parents met full course criteria, with scores ranging from 75 on Redirect-Reinforce to 100 on Use Reinforcement, Pivot, and Stay Close. The post-test scores from the participant's spouse were lower, ranging from 50 on Use Reinforcement to 100 on Pivot, with only one post-test score failing to meet criterion for passing the course. Of the twenty parents who were reunified with their children, 18 had higher scores, whereas two had lower scores than the second non-reunified parent. Scores for these reunified parents ranged from 0 on Use Contracts to 83 on Use Reinforcement across both participants. One parent failed to meet criteria for two subscales, the other for three subscales.

There were no remarkable demographic differences between reunified and non-reunified parents. The non-reunified parents were Caucasian Americans, had some college, had a household income $30-50,000 per year, came through the BMAPS program together as a couple, and were referred to BMAPS because of physical abuse allegations. They were not referred for other services, although they did take another parenting course after completion of the first BMAPS course series.

Research Question 2: Are participant scores related to recidivism?

None of the parents admitted being arrested for either non-traffic criminal activity after completion of the BMAPS program. Parents also deny being charged with neglect or abuse after their case was resolved, creating an apparent 0% recidivism rate.

CHAPTER 5

DISCUSSION

This discussion will consider the meaning of the results found in each phase of the study individually. First, the results of each phase will be restated and discussed in context of the analyses. Then, the results will be compared to results found in other studies. Generalizability of results will be discussed via comparison of parent characteristics to national, state, and local demographic characteristics. Limitations of the current study, such as lack of power for group statistics and possible sampling bias, will be covered for each phase. Finally, recommendations for future research will be covered with clinical practice and the study's limitations in mind.

Phase 1: Skill Maintenance

Results

Consistent with Hypothesis 1 (Participants will demonstrate pre- to post-course gains), there were clear gains, regardless of whether group or individual statistics were used. Among all Completers, pre-post course group differences were large and statistically significant. Among the seven Follow-Up Completers, post-hoc comparisons from repeated-measures ANOVAs showed large and statistically significant pre-post group differences on four of the six behavior assessments, as well as the overall average. The other two subscales demonstrated changes that were large and clinically significant, although they were not statistically significant. On an individual level, more than two-thirds of Completers and Follow-up Completers met full post-course criterion. By comparison, nearly all Completers and 71-100% of Follow-up completers met criterion for each of the behavior assessments.

Contrary to Hypothesis 2 (Attenuated gains are due to performance or psychological factors), post-course score attenuation does not appear to be related to demographic, performance, or psychological variables. Nearly a third of participants did not meet full course criteria at the post-course assessment, so analyses were done to isolate potential contributing factors. No systematic patterns of advantage were found on the basis of demographic differences (e.g., gender, education, income). Although Caucasians were more likely to complete the course, there were no ethnic differences between those who did or did not meet post-course criteria. Even parents who took a parenting course besides BMAPS did not have any advantages at the beginning or end of class over BMAPS participants who were not previously referred to other parenting courses. Looking at the variables of interest—performance and psychological measures—completers were systematically and significantly different from Non-Completers only on amount of homework completed. Homework completion showed a direct relationship with behavior assessments, where the more homework a parent completed, the higher their score on several tools and the Overall Average. Similar results for homework were found by Lundquist and Hansen (1998).

Contrary to Hypothesis 3 (Participants will maintain their skills to criteria three months later), three-month skill maintenance was not as pervasive and thorough as skill acquisition. Participants maintained their skills better on certain tools than others, but after completion of the full course—including remedial sessions—only one of the five participants who met criteria maintained all skills to criteria. The only statistically significant loss shown by repeated-measures ANOVAs for behavior assessments at the maintenance probe was on Set Expectations, whereas losses on the Overall Average

trended toward significance. Looking at absolute scores, the majority of participants (71%) realized losses on their Overall Average score (see Figure 1).

Maintenance results tend to be mixed among the prototype behavioral parenting programs reviewed here. Only some of the trained skills were maintained at follow-up in studies of PCIT as treatment for problem behavior in preschoolers. Of the four observational parenting scales measured, two (Negative Behavior and Follow) did not show significant pre-post differences, and none showed significant pre-test to maintenance session differences according to a small sample repeated measures ANOVA, with Bonferroni adjustments. However, all parenting skills (e.g., Negative Physical and Verbal Behavior, Follow, Lead, and Affection scales) realized improvements with medium to large effect sizes (Eyberg et al., 2001). These skills are most similar to the Avoid Coercion, Stay Close, and Redirect-Reinforce tools in the BMAPS program, respectively, with no equivalent being found for the Affection skill. Project 12-Ways studies show high levels of maintenance as a result of extensive generalization programming (Bigelow and Lutzker, 2000; Cordon, Lutzker, Bigelow, and Doctor, 1998). The BASP program, which served as a model for BMAPS curriculum and training protocols, found results that were similar to those observed in the current study. BASP parents lost 21 points on the Overall Average (Van Camp et al., 2008), compared to a 15 point loss found here.

Contrary to Hypothesis 4 (Losses below criteria are due to performance or psychological factors) performance and psychological factors were not associated with maintenance losses. Nearly 80% of participants did not meet full criteria at the maintenance probe, so analyses were done to isolate potential contributing factors such

as demographic, performance and psychological factors. Participants who maintained their overall average to criterion (Maintainers) were compared against those who did not (Non-Maintainers). Maintainers had a household income of at least $30,000 per year, whereas most non-Maintainers had a household income of <$15,000 per year.

No other demographic variables (i.e., gender, ethnicity, income, number of children, or number of children) appeared to be related to reductions in skill maintenance, as deemed by correlations or chi-square tests. There were occasional differences found on one behavior assessment based on performance or psychological variables; however, no systematic differences or relationships were found between these variables and behavior assessments. Analyses used for these conclusions depended on *t*-tests and correlations.

Consistent with Hypothesis 5 (Participants will demonstrate gains after participating in a booster session), participant gains were clearly demonstrated after a two-hour booster session. Interesting, statistically significant gains were found at the booster only if significant losses were realized at the maintenance probe, and most absolute gains at the booster were equivalent to losses at the maintenance probe. Maintenance to booster gains were found on post hoc repeated-measures ANOVAs for Set Expectations; however, the Overall Average score showed a clear trend and nearly met standards for statistically significant improvement. Looking at absolute scores, average gains made from the booster session were roughly equivalent to the average losses at the maintenance probe, with the exception of two skills: Redirect-Reinforce, which realized a higher net gain, and Use Contracts, which is the only tool that realized a net loss from the maintenance probe to the booster.

Among the Follow-up Completers, just as many participants met full course criteria as met criteria after the course, which is more than met criteria at the Maintenance probe. Six of seven participants met the Overall Average criterion, and the seventh nearly met criterion with a score of 68% (criterion = 70%). All participants met minimum criteria for four of the six tools, nearly three-fourths of Follow-up Completers (71%) met criterion for Use Reinforcement, and a large majority met criterion for Use Contracts (86%). These findings are consistent with previous literature. The same pattern occurred in the BASP program as well (Van Camp et al., 2008b), where the booster training gains were similar to and compensated fully for any maintenance losses realized.

Additionally, there were statistically significant pre-course to booster gains on the four of the six tools, as well as on the Overall Average. Of note, however, is that participants showed large and clinically significant changes on the other two tools that did not show statistically significant changes. Similar results were found with PCIT training for severe conduct problems in preschool children (Edwards, 1998).

Contrary to Hypothesis 6 (Attenuated booster gains are due to performance or psychological factors), attenuated booster gains do not appear to be systematically related to performance, or psychological variables. Nearly a third of participants did not meet full course criteria after the booster session. The only participant who did not meet the Overall Average criterion was a female with less than a high school education, who made less than $15,000 per year. Of note, other participants who met full criteria after the booster had those individual characteristics. No differences were found between

these groups on the basis of performance or psychological variables, as indicated both by *t*-tests and correlations.

Limitations

These results are favorable, but should be seen in the larger context of their respective analyses. The post-hoc ANOVA comparisons used to evaluate gains and losses on behavior assessments had two limitations: power and high criteria for significance. ANOVA analyses with four repetitions, an alpha error level of .05, and seven participants would have only a 26% chance of finding a medium-sized effect present in a population, given any individual sample from that population. Bonferroni adjustments divide the .05 alpha error criterion level by the total number of comparisons for each tool, which set a more stringent criterion for Type I errors. Although Maintenance losses and Booster gains do not appear to be statistically significant, data clearly show that the losses at the maintenance are generally regained after a two-hour booster session. Other analyses, such as visual analysis and mastery to course criteria, provided appropriate means to evaluate individual progress.

It appears that demographic, performance, and psychological variables have little influence on behavior assessment scores, although it is important to consider the statistical analyses that were used. Correlations completed with seven participants and an alpha error of .05, have an 8% chance of finding any medium-sized correlation present in a population from any given sample. Similarly, independent samples *t*-tests with an error level of .05 and sample size seven, have a 20% chance of finding a medium-sized effect in any sample, given that it is present in the population. Therefore,

we can be confident in saying that the variables related to gains and skill maintenance (i.e., homework completion and income) are closely related to behavior assessments in a similar general population. That would indicate that these variables, or underlying factors of these variables, have influenced behavior assessment scores. On the other hand, confidence in the null results may reflect the power of these analyses, rather than a lack of relationship between behavior assessments and either demographic, performance, or psychological variables.

Generalizability

In the maintenance phase, the majority of parents were female and between the ages of in their 20 and 39. Most participants were Caucasian; however, nearly a third of the sample identified themselves as either Latino/Hispanic American (19%) or African American (11%). The attrition rate among ethnic minorities, especially African American participants, was significantly higher than that found among Caucasians. Parents had two children on average, and only 1 in 10 parents had custody of their children as of the pretest session. Nearly one-third of parents said they did not have at least two people in their lives who they could tell “anything,” although people with social supports talked with their supports several times per week. Indicators of Socio-Economic Status show that a little over half (56%) of parents have an annual household income of less than $15,000, and another 13% make $15-30,000. Nearly one third of parents had less than a high school education, whereas another quarter had a high school equivalent education.

Participant demographics of the Phase 1 sample approximated national and state characteristics, although there were clear differences. National trends show that only a slim majority of perpetrators are female vs. a 70% majority found in the Phase 1 sample. Similarly, tracking by federal agencies show that 20% of perpetrators in the 2007 fiscal year were African American vs. 11% in the overall sample. Of the Completers, all African Americans dropped out, as did half the Latino Americans, and all Follow-up Completers were all Caucasian Americans. State statistics report nearly 40% of Texas Perpetrators in the Fiscal year 2008 were of Latino ethnicity, and nearly 40% were Caucasian, compared to the nearly 20% of Latino participants and 70% of Caucasians in Phase 1.

Several studies note that poverty and low SES are parental risk factors for child maltreatment (Asawa, Hansen, and Flood, 2008; DiLauro, 2004; Pelton, 1994); however, comparison to the general population is difficult, since national and state statistics do not report parent SES. The proportion of household incomes under $30,000 in the Phase 1 sample is nearly double that of the overall US population (32%; US Bureau of Census, 2004).

In sum, assumptions that the results found in Phase 1 generalize to the broader population of parents who maltreat their children may not be accurate. It appears that this sample was of similar age as national and state samples. By contrast, the sample may have over-represented females and Caucasians. Poverty is certainly a risk factor for child maltreatment and numerous parents in Phase 1 were impoverished; however, it is unclear whether participant SES in Phase 1 was representative of maltreating parents nationwide. Moreover, income appeared to have a noticeable effect only on skill

maintenance for most impoverished parents. On the other hand, these factors may not make a difference on ability to benefit from behavioral parent training. *T*-tests indicated no statistically significant differences between males and females, or Caucasian and ethnic minority participants. However, these analyses were underpowered and may have missed any differences that may be present.

Phase 2: External Validity

Results

Contrary to Research Question 1, participant behavior assessment scores were by and large unrelated to family reunification. At 1-3 years post completion of the BMAPS course, all court cases were resolved with the justice system. BMAPS parents had a 91% reunification rate. *T*-tests comparing parents whose families were (n = 20) or were not (n = 2) reunited indicate there were no systematic differences on either pre- or post-course behavior assessments. The only difference found was that reunified parents scored lower than parents whose families were not reunified on the Use Contracts pre-test, which likely occurred as the result of learning the Use Contracts tool in a previous cohort.

An analysis of absolute post-test scores for the non-reunified parents revealed interesting results. One of the non-reunified parents met full course criteria after remedial sessions, with scores ranging from 75 on Redirect-Reinforce to 100 on Use Reinforcement, Pivot, and Stay Close. The post-test scores from the participant's spouse were lower, ranging from 50 on Use Reinforcement to 100 on Pivot, with only one post-test score failing to meet criterion for passing the course. Of the twenty

parents who were reunified with their children, 18 had higher scores, whereas two had lower scores than the second non-reunified parent. Scores for the reunified parents ranged from 0 on Use Contracts to 83 on Use Reinforcement across both participants. One parent failed to meet criteria for two subscales, the other for three subscales. These results do make sense, though, given that Child Protective Service risk assessments consider not only parenting skills, but also caregiver capacity to provide a home, child fragility and behavior, “quality of connection,” response to CPS caseworkers, safety in the immediate and surrounding home environment, as well as other extraneous stressors (DFPS, 2008).

There were no remarkable demographic differences between reunified and non-reunified parents. The non-reunified parents were Caucasian Americans, had some college, a household income $30-50,000 per year, came through the BMAPS program together as a couple, and were referred to BMAPS because of physical abuse allegations. They were not referred for other services, although they did have to restart the BMAPS program.

The statewide reunification rate of 37% (DFPS, 2008) was far surpassed (145%) by the rate of reunification found in Phase 2 (91%). A person may argue that participants who complete the program self-select into a different sample of highly-motivated parents, whereas DFPS statistics includes all parents with a goal of reunification. Many of these parents may have been influenced by any number of factors that influences custody determinations, such as ability to provide a home and appropriate medical care.

Research Question 2 (Are participant scores related to recidivism?) was difficult to evaluate; however, Phase 2 participants reported a lower rate of recidivism than other parents in the child maltreatment system. None of the parents in this study reported being charged with either non-traffic criminal activity or various forms of child maltreatment (e.g., neglect or abuse) after their case was resolved. These results were similar to another small scale study (Wolfe, Sandler, and Kaufman, 1981). Programs with larger evaluations have shown recidivism rates that are half of that found in control groups after PCIT (Chaffin et al., 2004) and Project 12-Ways (Lutzker, 1998; Wolfe and Wenkerle, 1993). A large scale study of 700 families with Project 12-Ways realized a less profound, yet still significant change (Wolfe and Wenkerle, 1993).

BMAPS parents reported a dramatically lower rate of recidivism than reported by national, state, and local statistics. Denton county reported a 5-year recidivism rate of 25% (DFPS, 2008), whereas the national 5-year rate was 17% (Fluke, Shusterman, Hollinshead, and Yuan, 2005). The most appropriate estimate of what would be expected among the 1-3 year post-reunification rate in Phase 2 from the 2008 Texas report 1-year recidivism rate of 18% (DFPS, 2008).

Limitations

In regard to analyses used for participant comparisons and question 1, the group statistics were underpowered, although the single-subject analysis appear valid. Independent samples *t*-tests with an error level of .05 and sample size of 22, have a 20% chance of finding a medium-sized effect present in a population, given any random

sample. That means even if there is a population-wide effect, most samples of this size would be likely to show a false negative.

Methodologically, the results of Phase 2 may have been influenced by procedural bias. Parents who complete a parenting program, even if court mandated, may be less likely to reoffend than parents who refuse to attend a parenting program because of an openness to at least hear out others. Also, the parents who chose to participate may have agreed to participate because they had better experiences either with BMAPS or CPS, who referred them to BMAPS, than parents who did not choose to participate. Additionally, data on recidivism rate was gathered through self-report. Although parents were told their answers would not be shared and that the project is "*only asking about charges that CPS already knows about,"* they were also informed of the limits of consent. Therefore, it is possible that answers were based more upon socially-desirable properties than their actual experience.

Generalizability of the Sample

The external validity sample was similar to Phase 1, but differed primarily on indicators of Socio-Economic Status. The Phase 2 sample represented one-eighth of all participants who graduated the BMAPS program more than a year ago, and two-thirds of all parents who responded on the phone. Demographic characteristics reveal that over half (59%) of participants were female and the average age was 34 years old. Three-quarters of participants were Caucasian, whereas only 1 in 7 participants as either Latino American, and only 1 in 20 identified as African American. Nearly two-thirds of parents who agreed to participate in this phase originally went through

BMAPS with their spouse or partner. Phase 2 participants had a higher Socio-Economic Status than Phase 1 parents, given that only a quarter of participants made a household income of less than $30,000 per year and only 1 in 10 participants had less than a high school education.

Phase 2 demographics closely approximated national and state statistics on child maltreatment perpetrators, although there were some marked differences. The participant sex of Phase 2 was within five percent of national and Texas statistics (DFPS, 2008; US DHHS, 2009). The age distribution is also closely represented. By contrast, the ethnic distribution was markedly different. National and Texas statistics report higher numbers of Latino American (i.e., 20% and 39%, respectively) and African American (i.e., 19% and 18%, respectively) perpetrators, with corresponding lower proportions of Caucasian Americans (DFPS, 2008; US DHHS, 2009). Comparison of martial status is difficult given that national statistics are not reported and state statistics are ambiguous. Texas reported that 30% of parents were married and an additional 30% of parents had an unknown marital status (DFPS, 2008) vs. the two-thirds of parents who had a partner who attended BMAPS in the Phase 2 sample. These figures make it possible that our sample may or may not have been representative of the Texas state population of child maltreatment perpetrators.

It is important to note that only one quarter of participants were in households that made less than $30,000. Several studies note that poverty and low SES are parental risk factors for child maltreatment (Asawa, Hansen, and Flood, 2008; DiLauro, 2004; Pelton, 1994). Comparison to the general population of perpetrators is difficult, since national and state statistics do not report parent SES. The proportion of

households under $30,000 in the overall US population is only slightly higher (32%) than found among Phase 2 participants (US Bureau of Census, 2004).

Comparison on maltreatment type indicates that the Phase 2 sample may differ from national and Texas state samples. Over half of participants were initially referred because of drug-related neglect (55%) and a third (36%) for physical abuse, while nearly a quarter (23%) were referred to BMAPS for multiple reasons. National and state statistics on maltreatment type for families with removal indicated that the Phase 2 sample had triple the rate of physical abuse referrals (9% US, 12% Texas) and a higher proportion of multiple referral reasons (64% higher than the US rate of 19%, and 21% higher than the Texas rate of 19%), with a corresponding lower rate of neglect found (US US DHHS, 2009). On the other hand, the state of Texas does not refer parents to the BMAPS program who are sexual abusers and those who do not have a reunification goal. Therefore, differences in the distribution of maltreatment type may be more indicative of the difference between parents with reunification goals than actual differences between this sample and the perpetrator population.

In sum, assumptions that the results found in Phase 2 generalize to the broader population of parents who maltreat their children may not be accurate. The sample was similar to national- and state- reported proportions of gender and age among child maltreatment perpetrators. By contrast, there are differences in the ethnic distribution. There are also possible differences on variables such as marital or long-term relationship status, income, and type of offense, none of which appeared to be related to BMAPS post-course behavior assessments.

Future Research and Clinical Practice

The primary limitations that would need to be overcome in future studies include a limited sample size and possible sampling bias. Studies that attempt to isolate the impact of psychological risk factors on parent training performance using group statistics need a sample size capable of providing adequate power. Possible routes to this end may include multi-site collaboration or making recruitment a standard part of every cohort across several years. Sampling bias present in Phase 1 appears to be due to ethnic differences. Special efforts to recruit minority samples, including administering classes in inner-city areas, contacting the referral source to ask for more minority referrals, and providing extra incentives to parents of minority ethnic status may be necessary. Sampling bias in Phase 2 yielded a sample with potentially higher proportion of participants who are in a long-term relationship with a partner who went to BAMPS and a lower proportion of poverty. Perhaps this issue can be addressed by asking clients if they are willing to forewarning clients that they may be contacted in the future to update contact information every 6-12 months and/or to recruit participants who can not be contacted by phone via mail-outs. Methodological constraints of self-report may be overcome by obtaining participant releases to obtain certain information from Child protection offices.

Changes in clinical practice should also be considered. It is clear that without maintenance and generalization programming, gains made across parenting programs regress over time. The results of this study, however, clearly show that a single two-hour booster session helps parents demonstrate parenting skills with their trainers as if the losses never occurred. Since parents can wait months after completion of the

BMAPS program before being reunited with their children, providing a booster session in the month after being granted custody of their children would be a good idea. It would be assumed that a booster session would make it more likely that parents would be able use the parenting tools effectively, although that is an empirical question. Perhaps individualized services with *in vivo* coaching may be needed to assure that the skills generalize for use with children. Additionally, special efforts should be taken to help ethnic minority parents who are African or Latino American feel welcome and address concerns with their instructors.

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