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Deconstructing the time-out: What do mothers understand about a common disciplinary procedure?

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Deconstructing the Time-Out: What Do Mothers Understand About a Common
Disciplinary Procedure?

by

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Dissertation

Submitted to the Department of Psychology

Eastern Michigan University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in Clinical Psychology

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To Jeremy Albright, Ph.D.

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Abstract

Problem behavior is extremely common throughout childhood, and time-out (TO) is one of the most common disciplinary tactics used by parents to address problem behavior. However, despite the prevalence of use and five decades of research demonstrating the efficacy of time-out, parents rate time-out as one of the least useful behavior modification techniques. This discrepancy between parental opinion and empirical data may be due to the fact that all research conducted thus far has used adults highly trained in empirically-supported time-out procedures. No research has examined the degree of similarity between time-out conducted by untrained parents to empirically-supported time-out procedures. Fifty-five mothers were asked to define time-out and to provide information on how they conduct time-out. In addition, videotaped vignettes were used to determine the extent to which mothers could identify errors in time-out procedures and whether that ability was related to child problem behavior. Results indicate that participants' conceptualizations of TO differed considerably from the empirical rationale for TO. Relatively few participants reported adhering to or could identify the majority of parameters that have been shown to make TO effective. No significant relationships between TO accuracy and levels of child problem behavior were found. However, mothers who use TO procedures that are closer to the empirical ideal and who find TO to be more effective report using TO to punish a greater number of child problem behaviors.

TABLE OF CONTENTS

Introduction.....	1
Literature Review.....	3
Disruptive Behavior Problems.....	3
Parent Management Training.....	11
Empirical Time-out.....	17
Parental Use of Time-out.....	30
Methods.....	32
Purposes and Hypotheses.....	32
Participants.....	33
Procedure.....	33
Measures.....	37
Results.....	40
Data Analysis.....	40
Preliminary Analyses.....	41
Qualitative Analysis of Hypothesis One.....	43
Quantitative Analysis of Hypothesis Two.....	53
Post-Hoc Analyses.....	54
Discussion.....	59
Review of Results.....	59
Implications.....	64
Limitations and Future Directions.....	66
Summary.....	68

References.....	69
Appendix A.....	89
Appendix B.....	96

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Component Analysis of the Major Parent Management Training Programs.....	13
2	Participant beliefs about the purpose(s) of time out.....	46
3	Participants' adherence to empirically-supported TO parameters.....	50
4	Effects of Number of Errors Correctly Identified in the Vignettes and TOQ Scores on Average ECBI Scores.....	54
5	Effects of Depression, Stress, and SES on ECBI Scores.....	54
6	Effects of TO Accuracy on the Number of Behaviors Punished with TO, Controlling for Depression, Stress, and SES.....	55
7	Effects of Perception of TO Effectiveness on the Number of Behaviors Punished with TO, Controlling for Depression, Stress, and SES.....	57

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Frequency of participants' scores on the TOQ.....	44
2	Frequency of total errors in TO procedure identified by participants	45
3	Frequency of Participants' Ratings of TO Effectiveness (5-point Likert-Type Scale, 1= Not at all effective, 3=Somewhat effective, 5= Very effective).....	51
4	Effects of TOQ on Frequency of Time Out.....	56
5	Perceptions of Time Out Effectiveness and Time Out Usage.....	58

Introduction

Misbehaving is a normative phenomenon throughout childhood, considered essential for adequate development of self. Physical aggression is found in the vast majority (up to 80%) of preschoolers (Tremblay et al., 1999), and the average child fails to comply 20-40% of the time (Forehand, 1977; Johnson, Wahl, Martin, & Johansson, 1973). In addition to high rates of disruptive behavior in nonclinical populations, the caseloads of child psychologists often consist of a relatively high proportion of children with disruptive behavior disorders, including Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). According to the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association [DSM-IV-TR], 2000), the prevalence rates of ODD and CD in the United States population are estimated at 2-16% and 1-10%, respectively. Given the frequency with which clinical psychologists are asked to confront these problems, researchers have extensively examined the etiology of and evaluated treatments for disruptive behavior. Many parent and child factors have been found to predict the development of conduct problems; however, the prevailing wisdom is that these factors contribute to the development of a dysfunctional parent-child relationship, which is the most direct cause of the development of conduct problems (Patterson, 1982).

Parent management training (PMT) was created to address dysfunctional parent-child interactions, and it is the most researched treatment for behavior problems. In PMT, parents are taught to disrupt the pattern of dysfunctional parent-child interactions by applying consistent consequences to child behavior. There are many versions of PMT; however, all PMT programs include time-out (TO) as the major treatment technique to reduce problem behavior.

Although TO originated in the behavior analysis literature, the technique is broadly applied across disciplines and by the lay public. In fact, 45-85% of parents report having used

TO with their children (Barkin, Schendlin, Ip, Richardson, & Finch, 2007; Caughy, Miller, Genevro, Huang, & Nautiyal, 2003). TO has been researched extensively and its efficacy well-established. However, the effects of TO in reducing problem behavior have only been established with participants who were trained in conducting TO according to empirically-established criteria. Outside of the research setting, TO is usually conducted by adults with no formal training, such as parents or educators. This creates a chasm between the treatment outcome literature and common practice, though both populations are using the same language to describe what may be vastly different procedures. This may become a problem when introducing referred parents to PMT in a clinical setting because many parents reject the TO component. Parents report that they “have tried TO and it doesn’t work with my child” and may subsequently fail to adhere to the treatment or may drop out of treatment altogether. No study to date has actually tested the properties of untrained parental TOs including how parents conceptualize TO or how parents actually administer TOs. Furthermore, the perceived effectiveness of untrained TOs has not been examined.

The purpose of this study is to determine how mothers define TO, the degree of similarity between untrained mother-administered TO and empirically-supported TO procedures, and whether a child’s level of problem behavior is related to the level of adherence to established criterion. This study contributes to the literature by analyzing the breach between effectiveness and efficacy in the area of parent-administered disciplinary procedures.

Literature Review

Disruptive Behavior Problems

Description.

Disruptive behavior problems are the most common reason that children are referred for mental health services (Loeber, Burke, Lahey, Winters, & Zera, 2000). Physical aggression is found in the vast majority (up to 80%) of preschoolers, although it becomes less common after the age of five (Tremblay et al., 1999). The average child fails to comply 20-40% of the time (Forehand, 1977; Johnson et al., 1973), and temporary increases in oppositionality and defiance are part of the child's normative struggle for autonomy (Eyberg, Schuhmann, & Rey, 1998). When oppositional, defiant, and aggressive behavior is in excess of what is expected for a child's age, sex, and developmental level, he or she may be diagnosed with an externalizing behavior disorder. Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Attention Deficit-Hyperactivity Disorder (ADHD) are classified as disruptive behavior disorders in the *DSM-IV-TR* (2000).

ODD is defined as "a recurrent pattern of negativistic, defiant, and hostile behavior" causing clinically significant impairment. Thought to be a more serious disorder, CD is defined as "a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (*DSM-IV-TR*, 2000, p. 93). The behaviors associated with CD are grouped into four categories: aggression towards people or animals, destruction of property, deceitfulness or theft, and serious violations of rules. The prevalence of ODD is highest for children aged 5-10 years old, and the prevalence of CD is higher in older children and adolescents (Maughan, Rowe, Messer, Goodman, & Meltzer, 2004). However, the drop in ODD diagnoses in middle childhood is due in part to the *DSM-IV-TR* (2000) guideline

that a diagnosis of ODD cannot be made if a child meets CD criteria. This guideline is in place because in approximately 32% of children with ODD, the relatively mild behaviors of ODD are thought to progress to the more serious behaviors associated with CD, and the CD diagnosis therefore “trumps” a diagnosis of ODD (Biederman et al., 1996; Loeber, Keenan, Lahey, Green, & Thomas, 1993).

ADHD is defined as “a persistent pattern of inattention and/or hyperactivity-impulsivity” present before age seven and causing significant impairment in more than one setting (DSM-IV-TR, 2000, p. 85). There is strong evidence that deficits in executive functioning underlie ADHD (see Krain & Castellanos, 2006 for a review) and for this reason it is commonly thought to be a neurodevelopmental disorder rather than a disorder of “intentionally” defiant behavior. It is important to note, however, that the diagnostic criteria for ADHD include many features that may be interpreted by adults as noncompliant and oppositional, such as appearing not to listen when spoken to directly, forgetfulness, frequently leaving his or her seat, and interrupting others (DSM-IV-TR, 2000).

Demographic characteristics, prevalence, and course of behavior problems.

According to the *DSM-IV-TR* (2000), the prevalence rates of ODD, CD, and ADHD in the United States population are estimated at 2-16%, 1-10%, and 3-7%, respectively. Evidence suggests that the prevalence of ODD, CD, and ADHD may be higher in children from families with low socioeconomic status (SES; Cuffe, Moore, & McKeown, 2005; Heinrichs, Bertram, Kuschel, & Hahlweg, 2005). According to the *DSM-IV-TR* (2000), rates of all externalizing disorders are higher among boys than girls.

Prevalence studies comparing ethnic groups have found inconsistent results. Nolan, Gadow, & Sprafkin (2001) found higher rates of ODD and CD in African American children

than in Caucasian children, but others have found no difference in rates (Bird et al., 2001). Notably, Nolan et al. (2001) did not control for SES, which is essential given that SES is a risk factor for conduct problems and minority groups are disproportionately represented amongst the economically disadvantaged. Indeed, Deater-Deckard, Dodge, Bates, and Pettit (1998) found that higher rates of aggression and externalizing problems for African American were no longer significant after controlling for SES. There do not appear to be ethnic differences in rates of ADHD (Cuffe et al., 2005).

Symptoms of ODD show moderate to high rates of stability across time (Lavigne et al., 2001). Stability of symptoms is greater if the problem behavior occurs in more than one setting, onset occurs at an early age (Keenan & Shaw, 1994), there is a comorbid diagnosis of ADHD (Loeber & Keenan, 1994), and/or the child demonstrates little concern for others (Harrist & Ainslie, 1998). For boys, ODD is a strong predictor for the development of early-onset CD. For girls, ODD is less likely to lead to CD because girls are far more likely to develop adolescent-onset CD with no prior diagnoses (Burke, Loeber, & Birmaher, 2002). Approximately 10% of boys and only 1% of girls in the population will receive a diagnosis of early-onset CD and also continue to have significant antisocial behavior into adulthood (Moffitt & Caspi, 2001). Approximately one-third of children diagnosed with CD will be diagnosed with antisocial personality disorder during adulthood (Lahey, Loeber, Burke, & Rathouz, 2002).

Clinical etiology and predictors of behavior problems.

Much research has been conducted on the development of clinical levels of problem behavior. Less research exists on the development of noncompliance and oppositional behavior at nonclinical levels in children. The research that does exist suggests that the same major factors that contribute to the development of ODD and CD contribute to the development and

maintenance of noncompliance and oppositionality at nonclinical levels (Green, Forehand, & McMahon, 1979; Snyder & Patterson, 1986).

Biological factors have been found to contribute to the development of CD and ADHD, and many psychosocial factors have been found to predict higher levels of all types of inappropriate child behavior. Parent, child, and sociocultural characteristics that are associated with behavior problems will be reviewed in the following section.

Parent factors.

In general, ODD and CD share similar parent, child, and sociocultural risk factors. Two aspects of parenting that have been extensively investigated with regard to oppositionality are discipline and monitoring. Mothers of children with disruptive behavior problems are more likely to use harsh, inconsistent discipline (Bird et al., 2001; Gardner, 1989) and to be poor at monitoring their children (Patterson & Stouthamer-Loeber, 1984). In various studies, these two variables have accounted for 10-40% of the variance in child conduct problems (Eddy, Leve, & Fagot, 2001). Parents of children with conduct problems are also more likely to behave in a generally negative manner towards their children, including making more negative and fewer positive statements to their children (Aragona & Eyberg, 1981), being overly strict, showing strong anger, and not reasoning with their children (Harrist & Ainslie, 1998).

ODD and CD are more likely to occur in children whose parents also have psychological disorders, such as depression, substance abuse, and/or antisocial personality disorder, with a stronger association for CD than for ODD (Frick et al., 1992; Lahey, Russo, Walker, & Piacentini, 1989). Antisocial characteristics in parents appear to increase the risk of conduct problems in part through direct genetic inheritance (Slutske et al., 1997), but research also suggests that most types of parental psychopathology largely contribute to the development of

behavior problems through resultant increased rates of poor parenting practices, such as ineffective discipline, reinforcement of aggression, and insufficient monitoring (Bank, Forgatch, Patterson, & Fetrow, 1993; Forehand, Lautenschlager, Faust, & Graziano, 1986; Frick et al., 1992).

Other factors are thought to interfere with the ability to parent effectively such as socioeconomic disadvantage, stressful life events, single motherhood, marital conflict, and becoming a mother at a young age, and the effects of these factors on child behavior are largely mediated by disruptions in parent-child relationships, parental discipline, and parental monitoring (Bank et al, 1993; Haapasalo & Tremblay, 1994; Harrist & Ainslie, 1998; Larzelere & Patterson, 1990; Patterson & Stouthamer-Loeber, 1984; Webster-Stratton & Hammond, 1999). In other words, the factors listed above disrupt parental ability to competently care for their children, and this disruption puts children at higher risk for conduct problems.

Parental cognitions have also been found to predict oppositionality. In a longitudinal study spanning the ages of six months to 17 years, Olson, Bates, Sandy, and Lanthier (2000) found that conduct problems were predicted by maternal perceptions that a child was often angry, defiant, in trouble, and hard to control. If a parent perceives the child's behavior as intentionally disruptive and the child as inherently "bad," the likelihood decreases that parents will monitor their child and adapt discipline strategies to changes in child behavior (Snyder, Cramer, A Frank, & Patterson, 2005).

Child factors.

Biological predisposition.

Temperament in infancy appears to be a precursor to the development of ODD and CD (Hirshfeld-Becker et al., 2002). Irritability, intensity of response, impulsivity, and maternal

perceptions of the infant as unresponsive are all correlated with later conduct problems (Bates, Pettit, Dodge, & Ridge, 1998; Olson et al., 2000). “Resistance to control” is a temperamental characteristic that manifests behaviorally as noncompliance to parental directives in early childhood and predicts conduct problems in middle childhood (Bates et al., 1998).

Correlations between CD, executive dysfunction, and impairment in verbal skills are consistently found in the literature (Moffitt, 1993). Considerably less research has been conducted on children with pure ODD, but the research that does exist suggests that neuropsychological deficits may play a weaker role in the development of ODD than they do for CD (Thorell & Walhstedt, 2006). It is unclear how much executive dysfunction in children with ODD/CD is due to the overlap of these disorders with ADHD (Oosterlaan, Scheres, & Sergeant, 2005), though a strong relationship has been hypothesized.

Child social factors.

As early as preschool, boys diagnosed with ODD are more likely than children without conduct problems to perceive social cues as hostile, detect threats early in ambiguous social situations (Muris, Merckelbach, & Walczak, 2002), and produce aggressive responses in social situations (Coy, Speltz, DeKlyen, & Jones, 2001). Adults and peers may inadvertently reinforce such aggressive behavior by giving in to the child, thereby increasing the probability of further aggression. This coercive behavior often eventually also leads to rejection by the majority of their peers by middle childhood (Hinshaw & Lee, 2003).

Despite their general unpopularity, children with conduct problems usually belong to social peer groups (Cairns, Cairns, Neckerman, Gest, & Garipey, 1988). Unfortunately, the peers that children with conduct problems select often also engage in aggressive and antisocial behavior (Snyder et al., 2005). Once in these peer groups, children reward each other for talking

about and role-playing deviant acts, thereby increasing the likelihood of continuing conduct problems (Snyder, West, Stockemer, Gibbons, & Almquist-Parks, 1996).

Parent-child interaction factors.

Of course, the child and parent factors discussed above do not exist in their own separate vacuums. The characteristics and behaviors of the child and the parent interact to either mitigate or enhance the effects of the risk factors discussed above. For example, a child with a difficult temperament who is irritable, unresponsive to his or her parents' attempts to comfort him or her, and resistant to attempts at behavioral control increases the risk of parental unresponsiveness, negative emotions toward the child, and harsh or no discipline (Olson et al., 2000). Difficult temperament, however, does not necessarily lead to conduct problems. If there is "goodness of fit" between the child's temperament and the environment, this risk factor may be mitigated (Thomas & Chess, 1977). Parents of children with difficult temperaments who were more controlling (Bates et al., 1998; Webster-Stratton & Eyberg, 1982) but also high in affection (McFayden-Ketchum, Bates, Dodge, & Pettit, 1996) tended to decrease their children's problem behaviors over time.

Patterson's (1982) cycle of coercion is the preeminent theory of the development of conduct disorders which takes into account the reciprocal nature of parent-child interactions. Most of the risk factors discussed above- such as child temperament, parental psychopathology, parent and child cognitions, marital conflict, low SES, and stressful life events- "set the stage" for parents and children to act in aversive ways by increasing the ambient level of negative emotions. Coercive parent-child interactions generally take the following form: The parent makes a request of the child and the child behaves in a way that will most likely result in the termination of the parent's intrusion. When the child engages in aversive behavior, the parent

may at this point terminate the interaction and fail to follow through on his or her command, and both the parent and the child are negatively reinforced. The child's behavior is reinforced by the removal of the aversive parental demand, and the parent's acquiescence is reinforced by the termination of the child's aversive behavior. During the next interaction, the parent may respond with aversive behavior (threats, yelling, scolding, and/or insults), and the child may comply with the command. The parent's aversive behavior is reinforced by the termination of the aversive behavior and by gaining child compliance, and the parent is more likely to behave this way in the future. Consequently, the parent and child increase the intensity of their interactions over time because each successive level of aversive behavior has been reinforced by the submission of the other.

This coercion theory has been tested with several different samples, and each study has found strong associations between inept parental discipline, coercive child behavior, and child conduct problems at home and at school (e.g. Baldwin & Skinner, 1989; Dishion, Patterson, & Kavanagh, 1992; Eddy et al., 2001; Patterson & Bank, 1986; Patterson et al., 1984). Coercion theory has been found to accurately describe the development of antisocial behavior in children ranging from 5-16 years old (Baldwin & Skinner, 1989; Eddy et al., 2001; Patterson, Dishion, & Bank, 1984) and in both boys and girls (Eddy et al., 2001). As such, the cycle of coercion theory describing patterns of ineffective discipline is the most empirically supported and widely accepted framework to predict noncompliant behavior.

Summary of the disruptive behavior literature.

The literature reviewed above suggests that the major factors in the development, maintenance, and escalation of ODD and CD are inconsistent/ineffective parental discipline and the cycle of coercion that results, which may account for up to 40% of the variance in child

conduct problems (Eddy et al., 2001). Although many other factors have been found to be associated with behavior problems, the vast majority of the risk factors for ODD and CD (including parental psychopathology, low SES, stressful life events, single motherhood, marital conflict, negative parental perceptions of the child, and difficult child temperament) largely impact the development of problem behavior by disrupting parental discipline and increasing negative emotions, which contribute to the cycle of coercion. In addition, some factors that uniquely contribute to the variance in child behavior problems are largely immutable, such as the child's biology, or may be extremely difficult to target therapeutically, such as child social cognitions.

Disruptive behavior disorders are relatively stable in the absence of treatment and are usually not simply outgrown (Lavigne et al., 2001). The evidence reviewed above on the development of conduct problems strongly suggests that interventions to reduce disruptive behavior should focus on increasing positive emotions among family members and teaching parents to use discipline techniques effectively and consistently. Parent Management Training (PMT) targets both of these areas and is the preeminent treatment for oppositional, aggressive behavior.

Parent Management Training

Description, rationale, and efficacy of Parent Management Training.

In Parent Management Training (PMT), parents are taught to change their child's behavior through the use of operant procedures. The rationale for PMT is that the cycle of coercion can be broken by teaching parents to apply consistent consequences to child behavior (Barkley, 1997). Parents are taught to consistently punish noncompliance to prevent the child from escaping parental demands by behaving aversively. In other words, the child's coercive behavior is no

longer negatively reinforced and is actually punished, which reduces the frequency of misbehavior over time. By learning to apply consistent punishment, parents are given an alternative to acquiescing to their child's aversive behavior in order to escape or avoid its occurrence. Parents are also taught to increase child compliance through consistent reinforcement in the form of praise and, in some programs, a token economy. Parents are given an alternative to behaving aversively (criticizing, threatening, hitting, etc.) to get their child to mind. Thus, the parent and the child no longer negatively reinforce each other for behaving inappropriately.

Other techniques are also used in most PMT programs to break coercive interaction patterns. Many programs teach the parent to play with his or her child in a way that allows the child to direct the action and gives the parent the opportunity to show the child affection. This increases the reinforcing power of the parent's attention, which makes the technique of differential attention (ignoring inappropriate and praising appropriate behaviors) more effective. Differential attention is taught to parents in most programs as a way to decrease mild inappropriate behavior that is maintained by attention and replace it with an incompatible appropriate behavior. This eliminates the parent's need to nag and criticize to reduce disruptive behavior. These two techniques, child-directed play and differential attention, promote a more positive, warm relationship and reduce the likelihood of the escalation of child and parent aversive behaviors. TO is also included as a punishment technique in all PMT programs. The role of TO in PMT is to reduce problem behaviors that are not maintained by attention, such as noncompliance, and more serious inappropriate behaviors, such as physical aggression and property destruction, that are too harmful to be ignored.

Several different PMT programs exist that utilize these behavioral techniques but differ somewhat in the format used to instruct parents (e.g. videotaped vignettes vs. role-playing vs. in-session rehearsal) and the specific techniques included. The components included in each of the major PMT programs and those associated with larger reductions in child problem behavior are displayed in Table 1.

Table 1

Component Analysis of the Major Parent Management Training Programs

Parent Management Training Program (Original Author)	Treatment Components									
	Education on Operant Principles	Child-Directed Play	Effective Praise	Differential Attention	Token Economy	Effective Commands	Compliance Training Periods	Time-Out	Response Cost	Child Monitoring
Living with Children ^{ab} (Patterson)	X		X		X			X	X	
The Incredible Years-BASIC ^{cde} (Webster-Stratton)	X	X	X	X	X	X		X	X	X
Parent-Child Interaction Therapy ^f (Eyberg)		X	X	X		X	X	X		
Helping the Noncompliant Child ^g (McMahon & Forehand)		X	X	X		X	X	X		
Defiant Children ^h (Barkley)		X	X	X	X	X	X	X	X	X
Components associated with significantly larger effect sizes on child externalizing behavior ⁱ		X						X		

Note. Sources of information: ^a Patterson, Reid, Jones, & Conger, 1975. ^b Patterson, 1979. ^c Webster-Stratton, 1998. ^d Webster-Stratton & Hancock, 1998. ^e Webster-Stratton & Reid, 2003. ^f Hembree-Kigin & McNeil, 1995. ^g McMahon & Forehand, 2003. ^h Barkley, 1997. ⁱ Kaminski, Valle, Filene, & Boyle, 2008.

These major PMT packages have been found superior to wait-list control groups (e.g. Anastopoulos, Shelton, DuPaul, & Guevremont, 1993; Eyberg, Boggs, & Algina, 1995; Peed, Roberts, & Forehand, 1977; Reid, Webster-Stratton, & Beauchaine, 2001; Scott, Spender, Doolan, Jacobs, & Aspland, 2001; Wiltz & Patterson, 1974) and/or other types of psychotherapy (e.g. Alexander & Parsons, 1973; Bernal, Klinnert, & Schultz, 1980; Patterson, Chamberlain, & Reid, 1982; Spaccarelli, Cotler, & Penman, 1992; Webster-Stratton, Reid, & Hammond, 2001) for children with high rates of noncompliance as well as children diagnosed with ODD and ADHD. Treatment gains have been maintained within the normal range for up to 14 years after termination (Long, Forehand, Wierson, & Morgan, 1994) for 50-84% of children completing PMT (e.g. Drugli, Larsson, Fossum, & Mørch, 2010; Hood & Eyberg, 2005; Patterson & Fleischman, 1979; Reid, Webster-Stratton, & Hammond, 2003). Given these results, PMT is classified as a well-established treatment for oppositional behavior by the Task Force on Promotion and Dissemination of Psychological Procedures (1995). Treatments are classified as well-established based on the quality of the methodology used in treatment outcome studies and replication of positive results (Chambless & Hollon, 1998).

Dismantling PMT.

The major PMT programs differ somewhat in the operant techniques utilized. As was discussed briefly in the previous section, programs typically include two discipline components: ignoring and time-out (TO). However, TO is the only discipline technique included in all programs and evidence suggests that TO is an essential component of the treatment. Eisenstadt, Eyberg, McNeil, Newcomb, and Funderburk (1993) found that families who received only the discipline segment (including differential reinforcement and TO) of PMT had more improvements in child behavior than families who received the child-directed play phase only. A

more recent meta-analysis found that PMT programs that include TO have significantly larger effects on child problem behavior than did PMT programs that do not include TO (Kaminski et al., 2008). Differential attention is usually taught prior to TO in PMT programs, but several studies have found that differential attention alone does not significantly increase appropriate behavior or decrease inappropriate behavior without the addition of a TO component (Budd, Green, & Baer, 1976; Roberts, Hatzenbuehler, & Bean, 1981; Wahler, Winkel, Peterson, & Morrison, 1965; Walle, Hobbs, & Caldwell, 1984).

TO appears to be an essential component of PMT, but the other components of PMT are not superfluous. Multiple components continue to be included in PMT because they contribute to behavior change in ways that TO, as a punishment procedure, cannot. For example, TO alone cannot teach children what “to” do, only what “not” to do. Praise and token economies are included because they have been demonstrated to teach children appropriate behavior (Harris, Wolf, & Baer, 1964; Ribes-Inesta et al., 1973; Rickard, Melvin, Creel, & Creel, 1973). Components of PMT also may function to enhance the effects of TO. For example, child-directed play, effective praise, and token economies all presumably make the child’s natural environment more reinforcing, which, as will be discussed in detail in the following section, makes TO more effective. In fact, Kaminski et al. (2008) found that PMT programs that include child-direct play produced larger reductions in child externalizing behaviors than PMT programs that did not. Finally, some components of PMT, such as differential attention and reasoning, appear to effectively maintain the initial gains achieved through TO (Larzelere, Schneider, Larson, & Pike, 1996; Walle et al., 1984).

Given the above review, it appears that TO may be necessary but not sufficient to produce significant behavior change. Because TO is a necessary component of PMT, it is

essential that it be implemented accurately. TO may seem to be a simple discipline technique, but the literature suggests that the successful implementation of TO is quite complex (Turner & Watson, 1999). The following section will discuss the empirical definition, efficacy, and important parameters of TO.

When PMT fails.

While PMT is efficacious for most families, approximately 33% of families who enter PMT studies either drop out of treatment (e.g. Bagner & Eyberg, 2003; Eyberg et al., 1995) or fail to make clinically significant improvements (Taylor & Biglan, 1998). Several factors have been shown to increase the likelihood that a family will not successfully complete PMT, such as low SES (Fernandez & Eyberg, 2009; Lundahl, Risser, & Lovejoy, 2006; Reyno & McGrath, 2006), single parenthood (Lundahl et al., 2006; Webster-Stratton, 1990), and parental psychopathology (Reyno & McGrath, 2006; Beauchaine, Webster-Stratton, & Reid, 2005). Moreover, research has shown that parental reaction to PMT influences treatment outcome. Parents are less likely to benefit from PMT if they are resistant, in part because less time is spent on skills training in therapy sessions (Patterson & Chamberlain, 1994) and because they are less likely to complete parenting skills homework (Baydar, Reid, & Webster-Stratton, 2003). Prior to training in effective TO procedures, parents rate TO as one of the least acceptable and useful components of PMT (ranking TO only above ignoring; Calvert & McMahon, 1987). Although no studies have directly examined whether prior negative experience with TO predicts treatment failure, these findings suggest that parents may be less likely to complete PMT or will be less adherent (and therefore PMT will be less effective) if parents have experience with TO, believe it to be ineffective for their child, and therefore resist a major component of PMT. The importance of the TO component in PMT will be discussed in the following section.

Empirical Time-out.

Description and efficacy of time-out.

TO is commonly defined in the literature as a procedure in which an individual is “removed from a reinforcing environment and placed in one that is less reinforcing” for a period of time contingent on “undesirable behavior” (Shriver & Allen, 1996, p. 68). TO has been a focus of behavior analytic research for five decades and has been found to reduce many types of behavior, from key pressing in chimpanzees (Ferster, 1957) to noncompliance, oppositionality, verbal and physical aggression, property destruction, yelling, and inappropriate sexual behavior in humans (Everett et al., 2007; Fabiano et al., 2004; Gardner, Forehand, & Roberts, 1976; Jones, Sloane, & Roberts, 1992; Kendall, Nay, & Jefers, 1975; Sachs, 1973; Scarboro & Forehand, 1975). The punishing effects of TO have been demonstrated for children of all ages and are effective not only with nonclinical levels of disruptive behavior (Gardner et al., 1976; Hobbs, Forehand, & Murray, 1978) but also for those who have psychological disorders, including ADHD, ODD, CD, developmental disabilities, mental retardation, severe emotional problems, and psychosis (Alevizos & Alevizos, 1975; Budd et al., 1976; Clark, Rowbury, Baer, & Baer, 1973; Drabman & Spitalnik, 1973; Fabiano et al., 2004; Jones & Downing, 1991; Mace, Page, Ivancic, & O’Brien, 1986; Sachs, 1973). In most studies, TO has been found to reduce undesirable behavior by 50-90%. In a pioneering meta-analysis, Forehand and MacDonough (1975) found that TO quickly reduced target behavior to near-zero rates in 40% of all cases. Single-subject and controlled group designs have been employed to compare TO to other behavioral procedures, and in these studies TO has consistently been found to have clinically significant effects (e.g. Forehand, Roberts, Doleys, Hobbs, & Resick, 1976; Roberts et al., 1981).

Therefore, TO meets the criteria for well-established treatments and is considered one of the most effective behavior change procedures ever researched.

The voluminous data indicating the punishing effects of TO suggest that it is a relatively robust procedure. However, the research on TO has been conducted under highly controlled conditions in which a researcher, educator, direct-care staff member, or parent have been highly trained in specific TO procedures. These results may not generalize to situations in which no training in TO procedures has occurred. In other words, the efficacy of TO is well-established, but the effectiveness of TO in reducing disruptive behavior is unknown. This is an important distinction because treatment failures with TO may well be due to errors in implementation made by inadequately trained adults.

In the only study examining the administration of TO by untrained adults, Taylor and Miller (1997) specified several empirically-supported parameters of TO and observed the degree to which classroom staff adhered to those parameters. The percentage of the parameters adhered to by staff members was considered their TO accuracy rate. Taylor and Miller found that prior to receiving training, TO was conducted by the staff with only 29-82% accuracy, and student aggression remained at high levels. Staff members were then trained through modeling, role-playing, and rehearsal until each demonstrated 100% TO accuracy. Following training, staff conducted TO in the classroom with 83-100% accuracy, and student aggression decreased from occurring in 43% of intervals, on average, to 9% of intervals for one child and from 59% of intervals to 4% of intervals for the other child who exhibited significant aggression. These results suggest that the TO is a rather complex procedure which may fail if conducted in a manner inconsistent with the empirical literature. Several parameters have been empirically demonstrated to impact the efficacy of TO, and these will be reviewed in the following section.

Parameters of time-out.***Contrasting environments.***

For TO to function as a punisher, a contrast must exist in reinforcing value between the child's natural environment and the TO environment (Brantner & Doherty, 1983). The efficacy of TO can therefore be increased by decreasing the reinforcers available in the TO setting and/or increasing the reinforcers available in the natural environment (Solnick, Rincover, & Peterson, 1977). The most important parameter of TO is this relationship or contrast between these two settings, and TO will not be effective if the TO environment is not experienced as less reinforcing than the natural environment (Shriver & Allen, 1996).

Different TO procedures have been studied which differ in the degree to which the child is removed from sources of reinforcement. The different procedures are generally classified as seclusion, exclusion, or nonexclusion procedures (Brantner & Doherty, 1983; Harris, 1985). In seclusion TO, the child is removed from the room in which the inappropriate behavior occurred and taken to a separate, often empty, room where he or she is isolated. This is the most restrictive type of TO, as almost all sources of social, material, and sensory reinforcement are absent (Brantner & Doherty, 1983). Of the three types of TO, seclusion TO is the most effective because access to reinforcers is most restricted (Crespi, 1988; Forehand, 1985). However, this type of TO is generally only achieved in a lab setting and is impractical in most other settings because staff is often not available to supervise a child who is separated from the group and because a separate, empty room is not available in most homes or schools.

In exclusion TO, the child remains in the room, but is removed from a reinforcing area, such as when a child is made to face the corner or sit behind a screen (Harris, 1985). This type of TO removes most types of visual and material reinforcement, but auditory stimulation is often

available. Because the child can hear and be heard by others, reinforcement from social attention is more likely also. Parents often have great difficulty ignoring their child's verbalizations during this type of TO and may provide attention. In classroom settings, other children may inadvertently provide attention to the child in exclusion TO.

In nonexclusion TO (also known as contingent observation), the child remains close to an area of reinforcement but is not allowed to participate in the activities (Harris, 1985). The child is allowed to watch others continue to engage in the activity (e.g. when a child must sit and watch a soccer game from the sideline). Nonexclusion TO is the least restrictive because the child continues to receive visual and auditory stimulation and is most likely to continue to receive social stimulation. It should be noted that exclusion and nonexclusion TOs may eventually reduce disruptive behavior to levels similar to what is achieved with seclusion TO, but significantly more TOs must be administered (Scarboro & Forehand, 1975). This is significant because the more time that a child spends in TO, the less time the child is able to spend learning appropriate behavior or academic material. In addition, parents may discontinue TO before significant behavior reductions occur and conclude that TO was ineffective.

Anecdotal data suggest that TO most often fails because parents do not reduce the available reinforcers sufficiently, causing parents to conclude that TO does not work for their child. Parents commonly make errors that result in reinforcement of the child during TO including sending a child to his or her room for TO but failing to remove the child's toys, television set, video games, and/or books. They may also leave music or the television at audible levels while the child is in TO, which provides the child sensory reinforcement. Or, they may fail to completely ignore the child's insults, crying, requests to use the bathroom, and so on while in TO, which results in social reinforcement (Reitman & Drabman, 1996; Shriver & Allen, 1996).

Allowing children to vocalize during TO may also reduce its effectiveness if the vocalizations function as self-stimulation and therefore allow him or her to escape boredom (e.g. singing, talking to an imaginary friend, calling the dog; Erford, 1999).

As stated above, the availability of reinforcers in the child's natural environment also greatly impacts the efficacy of TO. Solnick et al. (1977) demonstrated that a very restrictive TO procedure did not reduce inappropriate behavior when the child's natural environment was also largely void of reinforcement, presumably because of insufficient contrast between environments. Following enrichment of the natural environment, however, TO became an effective punishment. Fabiano et al. (2004) found that exclusion and nonexclusion TO procedures could be equally effective in classroom and recreational settings when all non-TO environments were rich in reinforcement, which demonstrated that less restrictive TOs can be effective in the context of highly enriched natural environments.

A very enriched natural environment is referred to as time-in (TI). As previously discussed, several of the components of PMT, such as effective praise, child-directed play, and token economies, help create TI. Families with behavior disordered children are generally characterized by high levels of conflict and strained relationships (Greenberg, Speltz, & DeKlyen, 1993; Patterson, 1982), which reduces the social reinforcement in the child's natural environment. In such cases, it is essential that efforts are made to create TI because TO is likely to be ineffective when used in isolation. Child-directed play is included in almost all PMT programs to drastically increase the social reinforcement available to children and create a super-concentrated TI environment. During child-directed play, parents demonstrate affection and undivided attention by describing their child's actions, reflecting child verbalizations, utilizing physical contact, and providing praise while also refraining from criticizing, questioning, and

commanding the child. Nearly constant descriptions, reflections, praise, and physical contact are required to optimize the TI environment and thereby maximize the contrast between TI and TO (Barkley, 1997; McMahon & Forehand, 2003; Hembree-Kigin & McNeil, 1995).

In summary, parents commonly make three critical errors when conducting TO: (1) allowing the child social, material, and sensory reinforcement in the TO environment, (2) providing the child with an insufficiently reinforcing natural environment, and (3) making both of the previous errors to a great enough extent that an insufficient contrast exists between the TO and natural environments. The procedural errors that will be reviewed below, although of lesser importance than contrasting environments, are still important if TO is to effectively and efficiently reduce problem behavior.

Errors in initiating time-out.

Several factors are important when parents initiate a TO, including the immediacy with which TO is delivered and whether a reason or warning is provided. TO is more effective in suppressing behavior the closer in time that it is delivered following the inappropriate behavior. Although no studies have directly demonstrated this with TO, researchers have consistently found that suppression of behavior is inversely related to the length of time punishment is delayed (e.g. Abramowitz & O'Leary, 1990; Camp, Raymond, & Church, 1967; Trenholme & Baron, 1975). It is generally recommended that TO be delivered within 3-5 seconds of the occurrence of the problem behavior (Barkley, 1997; Danforth, 1998; Drabman & Spitalnik, 1973; Hembree-Kigin & McNeil, 1995). No data exist as to how quickly the average parent administers TO.

Some PMT programs instruct parents to provide children with a brief, verbal reason for being placed in TO, and this does not seem to increase or decrease the efficacy of TO or reduce

children's resistance to TO (Alevizos & Alevizos, 1975; Gardner et al., 1976). However, it is essential that providing the reason does not delay TO or substitute for TO. Larzelere et al. (1996) found that parental reliance on reasoning alone with their 2-3-year-old children predicted higher levels of problem behavior when the children were four years old. Training parents to provide a brief statement of the relevant contingencies could increase the efficacy of TO if it prevents common TO errors, such as engaging the child in an argument, criticizing the child, or threatening additional, excessive consequences that parents are later unwilling or unable to enforce (Alevizos & Alevizos, 1975; Reitman & Drabman, 1996).

Providing children with one brief, unemotional warning such as, "If you do not do as I say, you will go to TO," does not appear to decrease the efficacy of TO, and providing such a statement has been found to actually reduce the number of TOs necessary to reduce problem behavior (Roberts, 1982). Twyman, Johnson, Buie, and Nelson (1994) found that providing more than one warning actually *decreases* the effectiveness of TO and does not reduce the number of TOs administered because TO is delivered with less immediacy. As additional warnings are delivered, a delay is created which functions as a reinforcer for most children because they can continue engaging in a preferred activity rather than the activity requested by their parent (Barkley, 1997).

Duration of time-out.

TOs of moderate duration (approximately 4-5 minutes) are generally more effective than TOs of shorter duration and are at least as effective as longer duration TOs (Forehand, 1985), although the child's history with TO and the child's age may influence this recommendation. Hobbs et al. (1978) found that for 4-6-year-old, nonclinical children, 4-minute TOs were more effective in decreasing inappropriate behavior and maintaining those decreases than were TOs

that lasted one minute or less. McGuffin (1991) similarly found 1-minute TOs to be less effective than 5- and 10-minute TOs for hospitalized 4-12 year-olds. On the other end of the continuum, long TOs are generally as effective in suppressing disruptive behavior as moderate-length TOs. McGuffin (1991) and Fabiano et al. (2004) found that 5-minute TOs and 10- or 15-minute TOs reduced inappropriate behavior to similar levels. Although both procedures are equally effective, it is usually recommended that moderate length TOs be employed to allow the child more reinforcement opportunities for appropriate behavior in the natural environment (McGuffin, 1991) and to minimize the stress the parent may experience.

While moderate-duration TOs are usually preferred, the child's prior experience with TO must be considered because contrast effects may exist. Kendall et al. (1975) found that, as expected, aggression and noncompliance decreased significantly in an inpatient population of 9-14 year-old boys when a 5-minute TO was introduced for two weeks. When a 30-minute TO was then introduced, there were initial, dramatic increases across all types of disruptive behavior. Following two weeks of 30-minute TO, 5-minute TO was reintroduced, and significant increases of disruptive behavior were observed again. These results clearly demonstrate that TOs of long duration may be less effective than TOs of moderate duration if the child has a history of consistently administered moderate-length TOs, perhaps because the child views the longer TO "as punishing the successful suppression achieved with 5 minutes of TO" (Kendall et al., 1975, p. 614). The results also clearly indicate that TOs of moderate duration may be ineffective if the child has a history of receiving very lengthy TOs.

Finally, some controversy exists in the literature as to whether older children require longer TOs than younger children. Jones and Downing (1991) administered variable duration TOs in an inpatient setting during which the child was not required to serve a predetermined

length of time but was instead released following one minute of “calm” behavior. They found that 13-17-year-olds required significantly longer TOs than 1-12-year-old children. However, other studies have found no effects of age on the efficacy of various TO durations (Fabiano et al., 2004; McGuffin, 1991). Some PMT programs suggest that a child spend 1-2 minutes in TO per year of their age (e.g. Barkley, 1997) despite a lack of consistent evidence that longer TOs are required as children age. Common durations of TOs conducted outside of a lab setting are unknown.

Release from time-out.

There are several different procedures that have been developed to release children from TO. Release from TO can be child or adult initiated, contingent or noncontingent on quiet, calm behavior, and may or may not require child compliance with the original command. Not surprisingly, evidence clearly indicates that when children are allowed to determine when they are “ready” to leave TO, the self-imposed TO duration is too short to serve as an effective punishment. Bean and Roberts (1981) found that the average TO duration when the child was allowed to initiate their release was only 9.2 seconds, compared to the recommended minimum of four minutes, and, following the use of this TO procedure, children complied with only 44.1% of parental commands. In contrast, when parents enforced a minimum TO duration, child compliance rates averaged 77.9%.

Fewer studies have been conducted that examine whether it is necessary to release children from TO only after a period of quiet and calm behavior, which is referred to as contingent release (Hobbs & Forehand, 1977). The alternative to contingent release is to allow children to leave TO after spending a predetermined period of time or “sentence” (e.g. 4-5 minutes) whether their behavior is appropriate or inappropriate at the end of that period. This is

known as fixed duration or noncontingent TO (Hobbs & Forehand, 1977; MacDonough & Forehand, 1973). Theoretically, fixed duration TO could function as negative reinforcement for inappropriate behavior if the aversive condition of TO is terminated immediately following the performance of inappropriate behavior (MacDonough & Forehand, 1973). For example, if a child has been sitting in TO for several minutes and then begins to scream in frustration, he or she may be more likely to scream in the future if released from TO while screaming. He or she may believe that screaming caused the termination of TO.

All three of the studies that have compared the behavior of children who received contingent-release TO against children who received noncontingent-release TO have found that the children in the contingent-release group displayed fewer disruptive behaviors during TO (Erford, 1999; Hobbs & Forehand, 1975; Mace et al., 1986). Although Mace et al. (1986) found that the two procedures produced similar decreases in disruptive behavior in the children's natural environment, Hobbs and Forehand's (1975) findings suggested that contingent-release TO was more effective in reducing noncompliance. More recently, Erford (1999) found clear evidence that contingent-release TO results in significantly greater decreases in noncompliance in the natural environment than did fixed duration TO. Although both contingent and noncontingent release are commonly taught in labs and clinics, it is not known what procedure most parents employ.

The final important aspect of release from TO is the presence or absence of a requirement that the child comply with the original command issued by the parent at the end of TO. In theory, TO may be ineffective in decreasing inappropriate behavior if the TO is a way for the child to escape aversive tasks (Solnick et al., 1977). For example, a child may refuse to comply with a parents' command to pick up his or her toys because he or she finds the task to be unpleasant. If

the child is placed in TO and is then not required to pick up the toys, noncompliance may be more likely in the future. The requirement that the child comply with the original command is called escape extinction and the purpose of the requirement is to remove the possibility of negative reinforcement through escape. In the only investigation of TO with and without escape extinction, Everett et al. (2007) found that both procedures produced decreases in noncompliance, but TO with escape extinction produced greater decreases and reduced noncompliance into the normative range for all participants. These results clearly indicate that requiring that the child comply with the original command is an essential component of TO; however, it is unknown whether untrained parents commonly require compliance following TO.

Enforcement of TO.

Given that extremely short TOs do not suppress inappropriate behavior in children, it is essential that children not be allowed to escape the TO environment for at least 4-5 minutes, no matter how vigorously they resist. Several “back up” procedures have been suggested to enforce TO, such as spanking, erecting barriers, physically holding the child, response cost, repeatedly returning the child to TO, and applying additional consequences (e.g. no television or videogames, grounding, no dessert, etc.; Hembree-Kigin & McNeil, 1995; McMahon & Forehand, 2003; Roberts & Powers, 1990; Solnick et al., 1977; Turner & Watson, 1999). While anecdotal clinical experience suggests that response cost, repeated returns, and adding consequences are effective in reducing escape from TO, no empirical evidence exists as to the effectiveness of these strategies. The relative effectiveness of spanking, barriers (e.g. a plywood board in front of a doorway), and holding has been examined empirically. Spanking and erecting barriers have been found to be equally effective in decreasing noncompliance and the number of escape attempts from TO, and both require a similar number of TO administrations to reduce

noncompliance (Day & Roberts, 1983; Roberts, 1988; Roberts & Powers, 1990). Spank and barrier procedures appear to be superior to holding the child in the TO chair in terms of the number of TOs necessary to reduce noncompliance to a criterion level (Roberts & Powers, 1990), perhaps because of their inherent aversiveness. Of course, physical means of discipline and control (such as spanking and holding the child in the TO chair) may be effective in the short term, but the negative side effects and long term consequences may outweigh the short term benefits. For example, physical discipline is itself associated with conduct problems (McKee et al., 2007) and has been demonstrated to actually reduce noncompliance to parental commands (Lytton, 1979). In addition, physical intervention may result in unintentional injury of the parent or child, becomes increasingly difficult as the child grows larger and stronger, and tends to become less effective with repeated use. These factors should be considered when selecting a TO enforcement procedure as well.

Consistency of Time Out.

Delivering TO contingent on noncompliant behavior each and every time that it occurs (i.e. a continuous schedule) is essential to gain initial reductions in the behavior (Clark et al., 1973; Forehand, 1985). However, following initial reductions, evidence suggests that these gains can be maintained with an intermittent schedule of TO delivery. Clark et al. (1973) utilized variable ratio (VR) schedules, which deliver a consequence after an average number of occurrences of a behavior. Specifically, VR 3 (every third occurrence of the behavior, on average, was followed by TO), VR 4, and VR 8 schedules were employed. The results indicated that the low VR schedules (VR 3 and VR 4) maintained externalizing behavior at rates that were similar to those when TO was administered on a continuous schedule.

Although TO need not be administered after each occurrence of misbehavior following initial decreases, it is always essential that TO be delivered once the procedure has been initiated by the parent (Drabman & Spitalnik, 1973). That is, when the parent has told the child that he or she must go to TO, the child must not be allowed to escape TO by suddenly agreeing to comply, running away, arguing, pleading, and so on, because escape will serve to reinforce these delays in compliance and inappropriate behaviors (Reitman & Drabman, 1996).

Summary and Conclusions.

The literature reviewed above demonstrates that all TOs are not equal. Several elements are essential to maximize the effectiveness of TO, including creating a large discrepancy in reinforcement available in TO and TI environments, delivering TO immediately following disruptive behavior, providing one (and only one) warning to the child, enforcing a minimum TO duration of 4-5 minutes, having an adult release the child from TO only when the child is calm and quiet, requiring that the child comply with the original command immediately following release from TO, inevitably conducting TO once the procedure has been initiated, and delivering TO on a continuous schedule when it is initially employed to target disruptive behaviors.

When parents are trained to conduct a TO consistent with these parameters, it has been demonstrated to be an extremely effective punishment (e.g. Roberts et al., 1981). But how does the average parent conduct TO? Do parents view TO as an acceptable and/or effective discipline technique? As discussed above, the vast majority of the research on TO has been conducted with highly trained mental health and educational professionals, not in the real world of untrained parents. The next section will review parental use and opinion of TO.

Parental Use of Time-out

Few studies have examined the actual prevalence of TO use among parents. The studies that have been conducted have found that TO is commonly used by parents, with estimates of the prevalence of use ranging between 45% and 85% (Barkin et al., 2007; Caughy et al., 2003; Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004). Caucasian parents report using TO more frequently than do African American or Hispanic parents (Barkin et al., 2007; Regalado et al., 2004). Parents are also significantly more likely to report using TO if their child is preschool aged than if their child is older (Barkin et al., 2007).

Most studies on TO have investigated parental ratings of the acceptability of TO rather than the prevalence of its use. The acceptability of behavior modification procedures to the public is important because judgments of acceptability may influence whether parents adhere to treatment recommendations and/or drop out of treatment entirely (Pemberton & Borrego, 2007). Parental acceptance of treatment procedures has even been demonstrated to influence the actual effectiveness of the treatment (Kazdin, 2000). In general, TO is rated as less acceptable and effective than positive behavior modification techniques, such as social or tangible reinforcement, in both clinical and nonclinical samples (Calvert & McMahon, 1987; Jones, Eyberg, Adams, & Boggs, 1998; Norton, Austen, Allen, & Hilton, 1983; Riemers, Wacker, & Cooper, 1991). Parents also believe that TO is more effective for mild behavior problems than for severe problems (Riemers et al., 1991) and for preschool children than for children in elementary school (Norton et al., 1983).

Jones et al. (1998) hypothesized that parents commonly rate positive behavior modification techniques as more acceptable than TO because parents have tried TO and found it to be ineffective. Parents' relative lack of confidence in the effectiveness of TO with severe

behavior problems and older children appears to lend some support to this hypothesis. Additional support for the hypothesis comes from studies on the acceptability of TO with parents who have received PMT.

Calvert & McMahon (1987) found that parents who had not been trained rated TO as less useful and more difficult to conduct than did parents who had received PMT. Hobbs, Walle, and Caldwell (1984) found no significant differences in parental ratings of acceptability, and Webster-Stratton (1989) found no significant differences in ratings of usefulness between TO and reinforcement following parental training in TO. Parents have also demonstrated increases in their use of TO following training in its proper use. Caughy et al. (2003) reported that 58.3% of parents in their sample used TO prior to training, but, following training, 90.7% of parents used the technique. The number of parents who have received training in TO is unknown, but the number is likely to be low because parents are unlikely to seek training in a discipline strategy that they believe will not work for their child.

The evidence reviewed above clearly indicates that parents find TO to be more acceptable, useful, and effective *after* they have been trained to conduct an empirical TO. This suggests that many of the parents who have tried TO on their own have been at least somewhat dissatisfied with the effects. Taylor & Miller (1997) observed how TO was used by classroom staff, but, to date, no research has been conducted to examine exactly what parents with no training believe TO to be, how similar parental TOs are to empirical TO, and the effectiveness of parental TOs. This study will take the first steps in this direction by examining parents' definitions of TO, whether parents can identify the important parameters of TO, and whether their ability to identify important parameters is associated with their children's levels of disruptive behavior.

Methods

Purpose and Hypotheses

Prior to training in effective TO procedures, parents rate TO as one of the least acceptable and useful components of PMT (Calvert & McMahon, 1987) despite the fact that 45-85% of parents report using TO with their children (Barkin et al., 2007; Caughy et al., 2003). The purpose of this study was to investigate how TOs are conceptualized by mothers who have no formal training in the technique. Specifically, the present study attempted to examine how mothers of non-referred children use TO and the degree of similarity between mother-administered TO and empirically-supported TO. Further, the relationships between levels of externalizing behavior in children and the number of errors mothers can identify in videotaped vignettes of TO procedures were examined. This study contributes to the literature by examining the hypothesized chasm between disciplinary behavior in the research setting and the typical American household.

We hypothesized that (1) mothers' definitions of TO differ significantly from empirically-supported TO procedures and (2) mothers who have a less accurate understanding of TO (are able to accurately identify fewer errors in TO administration) would report more behavior problems in their own child. SES, parental depression, and parental stress were included as covariates because previous research has demonstrated relationships between these three variables and child problem behavior. Based on the literature, we expected SES to be negatively correlated with level of problem behavior (Cuffe et al., 2005; Heinrichs et al., 2005) and parental depression and level of stress to be positively correlated with level of child problem behavior (Deater-Deckard et al., 1998; Keenan & Shaw, 1994; Shaw, Owens, Giovannelli, & Winslow, 2001).

Participants

Procedures were administered to 58 parents of children between the ages of 2 and 12. All parents were English-speaking and at least 18 years old. Parents who had received formal training in TO procedures from an educational or psychological professional were excluded from participating. All parents were provided local referrals for psychological services because the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996) was not scored during the administration of procedures, and participants needed to know where to seek help in the event that they endorsed feelings of suicidality or moderate to severe depression. Participants were recruited from five Midwestern states at locations such as churches, schools, and online parenting groups. All participants were given a \$10 gift card to Target to thank them for their time.

Procedure

The principal investigator received approval from the Eastern Michigan University HSRC for all procedures before beginning data collection.

Potential participants were told that the purpose of the study was to assess disciplinary practices, including the perceived effectiveness of different strategies and their relationship to child behavior. Potential participants were also informed that all data are confidential, that they may stop participating at any time, and that their decisions regarding participation are confidential and would not impact their ability to receive services from the community site from which they were recruited. Potential participants were informed that a code, rather than their identifying information, would be attached to all data in order to ensure confidentiality. The informed consent forms included the investigator's and the Eastern Michigan University Human Subjects Review Committee's (HSRC) contact information (e.g. name, phone number, and email

address) to allow the participants to present any questions or concerns. The participant and the experimenter signed and dated two informed consent forms that included the above information. One copy was given to the participant and the other copy was retained by the experimenter.

Procedures were conducted at community sites (e.g. schools, coffee shops, churches) or the participants' homes. Procedures were administered in both group and individual formats. All research materials (informed consent forms, contact information, and completed questionnaires) are stored in locked file cabinets at the PI's home. All materials with identifying information are stored separately from coded questionnaires. When the study is complete, information linking informed consent and questionnaires will be destroyed.

Following the informed consent procedure, each participant received a packet containing the Four Factor Index of Social Status (Hollingshead, 1975), the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), the Parenting Stress Index Short Form (PSI/SF; Abidin, 1995), the Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996) and the Time Out Questionnaire (TOQ). The time required to administer all questionnaires was approximately 30 minutes. Please see the extended description of measures below. A copy of all measures can be found in Appendix A.

After completing the questionnaires, participants viewed a series of four videotaped vignettes of a female adult conducting TO with a preschool-aged child. Each vignette was approximately three minutes in duration, requiring 12 minutes total to administer. One vignette depicted a strict, harsh mother who made the following errors: (1) Providing an aversive time in environment, (2) Delivering TO 30 seconds after the disruptive behavior, (3) keeping the child in TO for 20 minutes, (4) attending to the child's verbalizations during TO, and (5) releasing the child from TO before he or she is calm and quiet. A second vignette depicted a lenient mother

who made the following errors: (1) providing social, material, and sensory reinforcement during TO, (2) providing several warnings before placing the child in TO, (3) failing to place the child in TO after the procedure has been initiated, (4) allowing the child to terminate TO when he or she is “ready” with a TO duration of less than 30 seconds, (5) failing to require that the child comply with the original command following TO, and (6) releasing the child from TO before he or she is calm and quiet. A third vignette depicted an inconsistent mother who made the following errors (1) providing several warnings before placing the child in TO, (2) attending to the child’s verbalizations during TO, (3) allowing the child to escape from TO multiple times and for several seconds before returning the child to TO, (4) releasing the child from TO before he or she is calm and quiet, and (5) failing to return the child to TO after he or she fails to comply with the original command. A fourth vignette contained no errors. There were a total of 16 errors in the vignettes. The four vignettes were counterbalanced to prevent order effects with the exception of the fourth vignette (with no errors), which was always shown last so as not to teach an empirical TO procedure. Between viewing each vignette, each participant was asked to write down the errors she identified on the Vignette Work Sheet, which is included in Appendix A. This work sheet was very open-ended to prevent cuing participants as to the number or types of errors to expect in the vignettes. The score that was included in analyses was the number of correctly identified errors.

Videotaped vignettes were selected over direct observation of parents conducting TO for several reasons. The biggest advantage to using vignettes is efficiency. Significant time is required to train researchers to reliably use direct observation coding systems. The lowest estimates of training time required to achieve acceptable reliability are 20 hours (McMahon & Forehand, 2003; Patterson, 1982). Research assistants can be easily trained to present videotaped

vignettes. In addition, direct observation would require that the researchers wait for child misbehavior to occur in order to observe a TO. This also would have required a significant time commitment. The second advantage is that vignettes allow greater standardization and control of variables, which increases internal validity (Poulou, 2001). A third advantage of vignettes over direct observation is ease of participant recruitment. Potential participants may have been reluctant to allow researchers into their home or to allow researchers to watch them discipline their child, both of which may be considered quite intrusive by some families. Vignettes, on the other hand, are less obtrusive (Poulou, 2001) and therefore more mothers may have been willing to participate. Finally, vignettes, unlike direct observation, do not “involve the respondent personally” (Poulou, 2001, p. 58), which reduces the likelihood that parents will provide inaccurate information due to concerns about social approval.

Despite the existence of several advantages of vignettes over direct observation, some limitations exist. The major limitation of vignettes is the likely reduction in external validity (Poulou, 2001). The similarity between parents’ responses to vignettes and the way that they conduct TO at home is unknown. Future research will be required to determine the generalizability of the results of this study.

Prior to showing the vignettes to any participants, five students in a clinical psychology doctoral program who are highly familiar with empirical TO procedures were asked to identify the errors in TO procedure shown in the vignettes. This step was completed to ensure that errors in the vignettes were depicted clearly enough for those aware of potential errors in TO to identify. All of the doctoral students successfully identified all errors.

Measures

Demographics Questionnaire.

The Demographics Questionnaire includes the Hollingshead Four Factor Index of Social Status (Hollingshead, 1975), which estimates the socioeconomic status (SES) of a family based on the levels of education and occupation of the one or two adults who head the nuclear family. The measure takes approximately 5 minutes to complete. The education factor is divided into seven levels based on the highest level of education completed, and the occupational factor is divided into nine levels based on the social prestige and income provided by the occupation. The scaled scores for education and occupation are weighted (multiplied by 3 and 5, respectively), and these totals are summed. For families with two employed adult heads-of-household, the sums for each adult are averaged to estimate the SES of the family. Scores range from 8 to 66, with higher scores indicating higher family SES. This measure was included in the study because SES has been found to correlate significantly with the prevalence of disruptive child behavior (Cuffe et al., 2005; Heinrichs et al., 2005). SES was included as a covariate in this study. Additional demographics included in this questionnaire are the ages and genders of all children and household income.

Eyberg Child Behavior Inventory (ECBI).

The ECBI (Eyberg & Pincus, 1999) is a parent-report measure used to determine the number and frequency of child externalizing behaviors and to identify specific problem behaviors for children aged 2-16. It takes approximately 10 minutes to complete. The standardization sample included 798 children (52% male and 48% female) whose behavior was rated by 685 mothers and 76 fathers. The ECBI lists 36 common problem behaviors and results in two factor scores: Intensity and Problem. For the Intensity score, parents rate the frequency of

each behavior on a 7-point scale, with 7 representing “always,” 4 representing “sometimes,” and 1 representing “never,” and these ratings are summed. For the Problem score, parents identify the behaviors that are a problem for their child (Yes/No) and the number of behaviors endorsed as problematic are summed. Clinical cutoff scores have been established as 132 for the Intensity scale and 15 for the Problem scale. The ECBI has been found to have adequate reliability and validity.

The ECBI was selected over other psychometrically sound behavior rating scales, such as the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000, 2001), the Behavior Assessment System for Children, 2nd Edition (BASC-2; Reynolds & Kamphaus, 2004), and the Conners’ Rating Scales, Revised (CRS-R; Conners, 1997), because the ECBI assesses only externalizing behavior, which is the focus of the study. In addition, the list of problem behaviors that the ECBI provides allows the participants to easily identify the problem behaviors that they target with TO. This is necessary information if we are to analyze whether the number of TO errors parents can identify is related to child problem behavior. The Intensity and Problem scores for the behaviors that the participant punishes with TO were summed and then averaged. These score were used to determine level of child problem behavior.

Parenting Stress Index-Short Form (PSI-SF).

The PSI-SF (Abidin, 1995) is derived from the original, full-length PSI and is intended to measure stressors that have been empirically demonstrated to interrupt the parent-child relationship and contribute to the development and maintenance of child behavior problems. It consists of 36 items which result in Parental Distress, Parent-Child Dysfunctional Interaction, Difficult Child, and Total Stress scores. It can be administered to the parents of children between the ages of 1 month and 12 years and takes approximately 10 minutes to complete. The

standardization sample of the PSI included 2,633 mothers and 200 fathers, and the standardization sample of the PSI-SF included 530 mothers. The PSI-SF has adequate reliability. Research has not been conducted on the validity of the PSI-SF, but the Total Stress score on the PSI-SF has been found to correlate .94 with the original PSI. Abidin (1995) stated that because of this high correlation and the fact that the PSI-SF was derived from the original, adequately valid PSI, it is reasonable to conclude that the PSI-SF has adequate validity as well. Parenting stress, as measured by the Total Stress score, was included as a covariate in this study.

Beck Depression Inventory-II (BDI-II).

The BDI-II (Beck et al., 1996) is a self-report instrument intended to measure severity of depression. It consists of 21 items and can be administered to individuals 13 and older. The BDI takes approximately 5 minutes to complete. Cut-off scores have been established for minimal, mild, moderate, and severe depression. The standardization sample consisted of 500 outpatient clients, including 317 women and 183 men, and 120 non-referred college students. The BDI-II has been found to have adequate reliability and validity. This measure was included in the study because parental depression has been found to be associated with higher rates of disruptive child behavior and ineffective parenting practices (Baydar et al., 2003; Forehand et al., 1986). Parental depression was included as a covariate in this study.

Time-Out Questionnaire (TOQ).

The TOQ is a self-report instrument developed for this study and is intended to assess how parents define and use TO, as well as their beliefs as to the effectiveness of TO. The questions on the TOQ were derived from the literature on the empirical parameters of TO, but the wording of items was not based on any previous questionnaires because no questionnaires existed (prior to the TOQ) that ask parents to report on their conceptualization and use of TO.

The TOQ consists of 14 items and takes approximately 10 minutes to complete. If participants have more than one child, they are instructed to identify their most difficult child and to complete the questionnaire with that child in mind. If a participant has never used TO, he or she is asked to identify how he or she believes TO *should* be conducted and how effective he or she believes TO is *in general* rather than how effective it has been for his or her family. Nine of the items are open-ended, one is in Yes/No format, one is in multiple choice format, and three include a scaled response format. The scales range from 1 to 5, with 1 indicating a near-zero level of activity, consistency, or effectiveness, 3 indicating a moderate level, and 5 indicating a high level of activity, consistency, or effectiveness. Detailed definitions of how the questionnaire was coded are included in Appendix B. To create the TOQ score, items 1, 3-9, and 13-14 were summed. Possible scores ranged from 0 to 21. Item two was not included in the score because whether a parent uses TO has not been shown to influence their understanding of the empirical procedure. Item 10 was not included because parental report of TO effectiveness also has not been shown to influence actual effectiveness of TO. Items 11 and 12 were not included because participants' knowledge of empirical parameters that influence TO effectiveness often did not correspond with participants' self-reported adherence to those parameters.

Results

Data Analysis

A thematic analysis was conducted to address the first hypothesis, that significant differences exist between parents' definitions and the empirical definition of TO. Responses to all items on the Time-Out Questionnaire were coded and the frequency of the responses counted. Detailed definitions of the coding categories can be found in Appendix B. Frequency counts and/or other descriptive statistics (e.g. means) were calculated where appropriate.

To address the second hypothesis, data on parental depression and stress, SES, number of errors identified, and child problem behavior were screened for missing information, errors, and significant outliers. Prior to hypothesis testing, analyses of descriptive statistics were conducted. Simple regression was first conducted to examine whether levels of child externalizing behavior for which parents report using TO would be significantly lower ($p < 0.05$) when the parent was able to identify more errors in the videotaped vignettes or self-reported conducting a more accurate TO on the TOQ. Multiple regression was used to examine the expected positive correlation between parental depression and parenting stress and child problem behavior and the expectation that SES would be negatively correlated with child problem behavior.

Of the 58 parents who completed the study, complete data were included for 55 participants in both the qualitative and quantitative portions of the analysis. One participant's data were not included because he was the only father who participated in the study. One participant was excluded from the analysis because she had not completed a substantial portion of the ECBI, and one participant was excluded because she did not complete the TOQ.

Preliminary Analyses

Demographics.

The mean age of mothers was 32.61 ($SD=6.21$), and 80.36% of participants were married. This is considerably higher than the proportion of women in the general population who are married (49.32%; United States Census Bureau, 2009, Table A1). A large majority of participants (90.90%) were Caucasian. Seventy-five percent of participants had earned a bachelor's degree or higher, which is significantly higher than the proportion in the general population (27.39%; U.S. Census Bureau, 2009, Table F2). The majority of participants were employed full- (44.64%) or part-time (19.64%), but a greater proportion of participants were

stay-at-home mothers (30.36%) than in the general population of mothers with children under the age of 15 (16.50%; U.S. Census Bureau, 2009, Table FG8). The median household income range was \$70,000-\$79,999, whereas the median household income in the United States population in 2008 was \$50,303 (DeNavas-Walt, Proctor, & Smith, 2009). The families' mean score on the Hollingshead (1975) Index of Social Status was 47.64 (SD=12.22), which suggests that most families were within the medium business/minor professional range of socioeconomic standing. The average BDI score for nondepressed mothers in the study was 4.06 (SD= 3.68), which was lower than the mean score for nondepressed individuals in the standardization sample (M= 7.65, SD= 5.9; Beck et al., 1996). Five participants (8.93%) scored within the clinical range on the BDI, which is similar to the point prevalence of Major Depressive Disorder found in community samples (5-9%; *DSM-IV-TR*, 2000). The mean participant score on the PSI-SF Total Stress scale was 69.21 (SD=16.16), which is at the 50th percentile. Four participants (7.14%) had scores within the clinically significant range, which is a lower proportion (10%) than was found in the standardization sample (Abidin, 1995).

Participants were asked to respond to the questionnaires with their most challenging child in mind. The mean age of the children for whom parents were reporting responses was 4.76 (SD=2.82, Range= 2-12). Of the children for whom information was provided, 51% were male and 49% were female. Mothers' responses to the ECBI (a measure of externalizing behavior) indicated that 10.71% of the children scored within the clinically significant range ($T \geq 60$) on either the Intensity or the Problem Scale. The percentage of the population that would be expected to obtain a T-score of ≥ 60 is 15.9%.

Interrater reliability.

Responses to all items on the TOQ were coded, and errors in TO that were correctly identified by participants on the vignettes were tallied by the PI. Inter-rater reliability was then collected for 30% of all TOQs and 30% of all Vignette Worksheets utilizing a doctoral student in clinical psychology as the second coder. Pearson's r was calculated for both measures and found to be good ($r=0.92$ for the TOQ and $r=0.90$ for the Vignette Worksheets, respectively).

Convergent validity.

The correlation of the number of errors participants identified in the vignettes with the standardized TOQ scale was .29, which suggests some but not a great deal of overlap.

Qualitative Analysis of Hypothesis One

Thematic analysis and descriptive statistics were utilized to address the first hypothesis, that significant differences exist between mothers' definitions and use of TO and the empirical definition of TO. Almost all of the mothers reported having used TO (96%). Figure 1 displays the frequency of responses to the TOQ scale. A perfect score is 21. Participants' self-reported performance of TO was far below the "empirical ideal." The mean score on the TOQ was 14.02 ($SD=2.25$), with the modal score being 15 and the range being from 7 to 17.

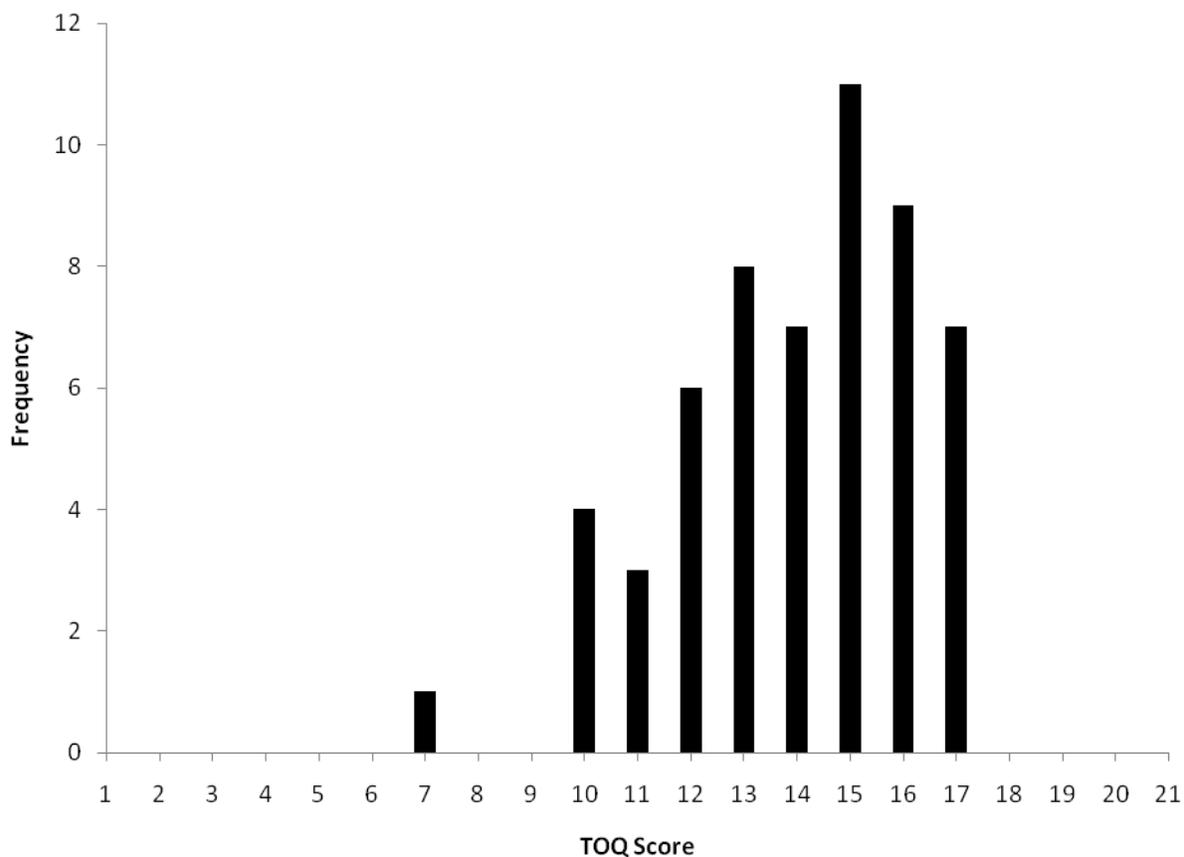


Figure 1: Frequency of participants' scores on the TOQ

Figure 2 displays frequencies for the second measure of TO practices, counts of errors in vignettes. There were a total of sixteen total errors in the vignettes; therefore, a perfect score, i.e. identifying all of the errors present in the vignettes, is 16. Like participants' self-reported performance of TO procedures, participants' ability to identify errors in TO procedure was even more dramatically below the "empirical ideal." The mean number of errors identified was 4.70 (SD=2.04), the modal number 3, and the range 0 to 9.

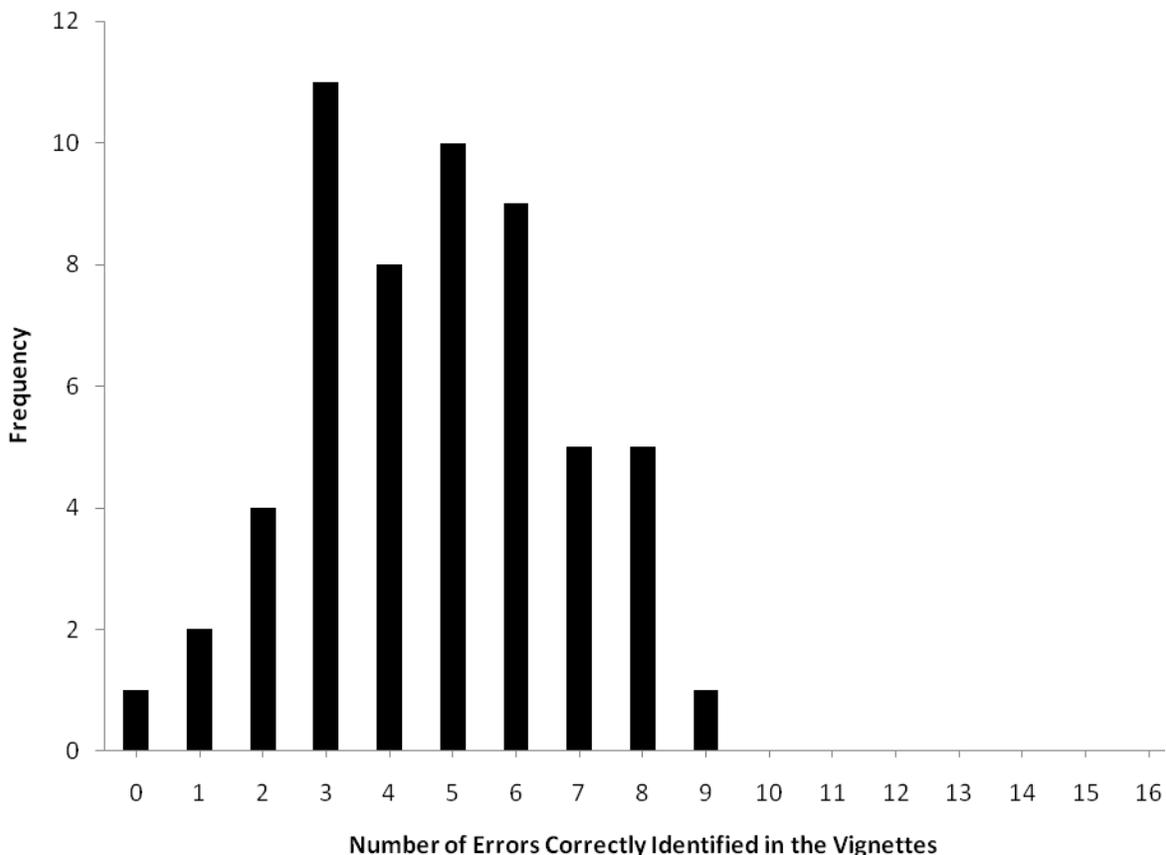


Figure 2. Frequency of total errors in TO procedure identified by participants

The purpose of TO.

Participants had a range of responses when asked for their beliefs as to the purpose of TO. Participants' responses are summarized in Table 2. As reviewed in the Introduction, the empirical definition of TO is the removal of a child from a reinforcing environment to a less reinforcing environment. Two out of 55 total participants (4%) identified the empirical definition of TO by stating that the purpose of TO is to remove the child from play and family. The most frequent purpose of TO identified by participants was giving the child time to think (51%). The second most frequent purpose identified was to remove the child from a stimulating situation to allow the child to calm down (46%). One third of participants reported that a purpose of TO is to provide a consequence or punishment for inappropriate behavior, and 15% stated that TO is a

strategy to teach children that certain actions are wrong. Six percent of participants reported that the purpose of TO is to establish parental authority, and two mothers (4%) stated that the purpose is to teach self-control. One fifth of mothers identified a purpose of TO as redirection or stopping inappropriate behavior. One participant stated that she believed that the purpose of TO was to have a chance to talk to her child about his or her behavior. The responses to the question support a general understanding of TO but do not represent a comprehensive, empirical definition.

Table 2

Participant beliefs about the purpose(s) of time out

Purpose	Number of Participants	Percentage of Participants
Think	28	51%
Calm down	25	46%
Consequence/punishment	18	33%
Stop behavior/redirection	11	20%
Teach behavior is wrong	8	15%
Establish parents' authority	3	6%
Remove the child from reinforcement	2	4%
Teach self-control	2	4%
Time to talk with child	1	2%

Parameters of TO.

As reviewed in the Introduction, several elements are essential to maximize the effectiveness of TO, including creating a large discrepancy in reinforcement between TI and TO environments, delivering TO immediately following disruptive behavior, providing one (and only one) warning to the child, enforcing a minimum TO duration of 4-5 minutes, having an adult release the child from TO only when the child is calm and quiet, requiring that the child comply with the original command immediately following release from TO, inevitably conducting TO once the procedure has been initiated, and delivering TO on a continuous schedule when it is initially employed to target disruptive behaviors. This section will discuss

these parameters and the frequency with which participants report adhering to these empirical ideals.

Restricting reinforcement in the TO environment is essential for TO to be effective in reducing problem behavior. The location of TO is one factor that can influence how much social, material, and sensory reinforcement are available, and TO is most effective when no reinforcement is available. When asked where the child goes for TO, 31% of participants reported placing their child in a location with very little reinforcement, such as a staircase, foyer, hallway, or basement. More participants (41%) reported placing their child in a location where a moderate level of reinforcement is likely available, such as the kitchen or a corner of the living room. Twenty-eight percent of participants reported using a TO location in which a high level of reinforcement is likely available, such as the child's bedroom, a playroom, or the living room couch.

When asked how much activity is usually going on around the child during TO (such as people talking or the television), 38% of participants reported that the child is isolated and there is no stimulation around him or her. The majority of participants (62%) reported that some activity occurs around the child while they are in TO. No participants reported that "a lot" of activity occurs around the child during TO. Eleven percent of participants stated that they allow their child to engage in potentially reinforcing activities, such as playing, reading, or talking to others, during TO.

The immediacy with which TO is delivered also influences the efficacy of TO. As reviewed above, Twyman, Johnson, Buie, and Nelson (1994) found that providing more than one warning or instruction decreases the effectiveness of TO, largely because a longer delay is created between the behavior and its consequence. In the current study, a large majority of

participants (85%) reported repeating instructions more than once. Only 15% of participants stated that they provide an instruction only one time before placing their child in TO.

A TO of moderate duration, approximately 4-5 minutes, is generally more effective than TOs of shorter duration and at least as effective as longer duration TOs (Forehand, 1985). Sixty-three percent of participants reported using durations close to the ideal range (TO that lasts 3-6 minutes). Many participants (16%) reported implementing TOs of 7-15 minutes, and an even greater number proportion of participants (20%) report TO durations of less than three minutes or greater than 15 minutes. In order to ensure that TO is of adequate duration, parents must return the child to TO or provide some other consequence if the child ends TO prematurely. All but three of the participants (95%) reported that they return the child to TO and/or provide a back-up consequence for escape from TO.

The efficacy of TO is also impacted by how the child is released from TO. As discussed above, TO is most effective if an adult releases the child from TO, the child is not released until he or she is calm, and the child is made to comply with the original command immediately following TO. A large majority of participants (87%) reported that an adult determines when the child is allowed to leave TO. However, only 38% of participants mentioned that the child must be calm before TO ends. A greater proportion of participants (45%) stated that the TO ends after a specific period of time has elapsed, regardless of the child's readiness. Thirteen percent of participants stated that the TO ends after the child apologizes or the parent and child have talked about why the child was in TO. Of all the participants, including those who reported that TO ends when the child is calm or when a predetermined period of time has elapsed, 49% mentioned that an apology or talk must occur before TO ends. Notably, no participants stated that their child must comply with the original command following TO.

Finally, the more consistently TO is administered contingent on problem behavior, the more effective TO will be in reducing that behavior. Thirty percent of participants reported that misbehavior is almost always followed by TO. A similar proportion (32%) reported that inappropriate behavior is followed by punishment more than 50% of the time, but less than “almost always.” Thirty-nine percent of participants reported that they administer punishment contingent on misbehavior 50% of the time or less, suggesting that they use this discipline strategy very inconsistently.

Table 3 summarizes the empirical ideals for each parameter and the percentage of participants who adhere to each ideal. Overall, mothers reported some understanding/appropriate use of the important parameters of TO. Almost all mothers appeared to understand that activities should not be allowed during TO. The majority of mothers reported using an appropriate duration of TO, a return to TO if the child misbehaves while in TO, and a parent-initiated release from TO. However, the majority of mothers did not report use of TO consistent with the empirical standards in the following domains: location of TO, amount of reinforcement available during the procedure, the immediacy with which TO is delivered, contingent release from TO, the requirement of compliance with the original request, and consistency of use of the TO procedure. Therefore, these findings support Hypothesis One, that significant differences exist between the empirical definition of TO and mothers’ definitions of the procedure.

Table 3

Participants' adherence to empirically-supported TO parameters

Parameter	Percentage of Participants
Enforce TO by returning the child or providing consequence	95%
Child not allowed to engage in any activities	89%
Adult releases child from TO	87%
Moderate duration (3-6 minutes)	63%
Release from TO contingent on calm behavior	38%
Problem behavior almost always followed by TO	32%
TO in a location with very little reinforcement available	31%
TO delivered after only one instruction/warning	15%
Child must comply with original command at the end of TO	0%

Effectiveness of TO.

In addition to being asked about how they conduct TO, participants were asked for their perceptions of the effectiveness of TO to further determine the extent to which mothers understand the empirical parameters of TO. The frequency of participants' effectiveness ratings of TO are shown in Figure 3. Participants largely viewed TO as effective for their families. The majority of participants (63%) rated TO effectiveness as a four or five on the TOQ, with an additional twenty percent of participants giving the rating of 5/5, with a rating of five indicating that they had found TO to be "very effective." Twenty-eight percent of participants reported that TO has been somewhat effective, and nine percent reported that TO has not been very effective (i.e. rated TO as a one or two on the TOQ). Only one participant rated TO as "not at all effective."

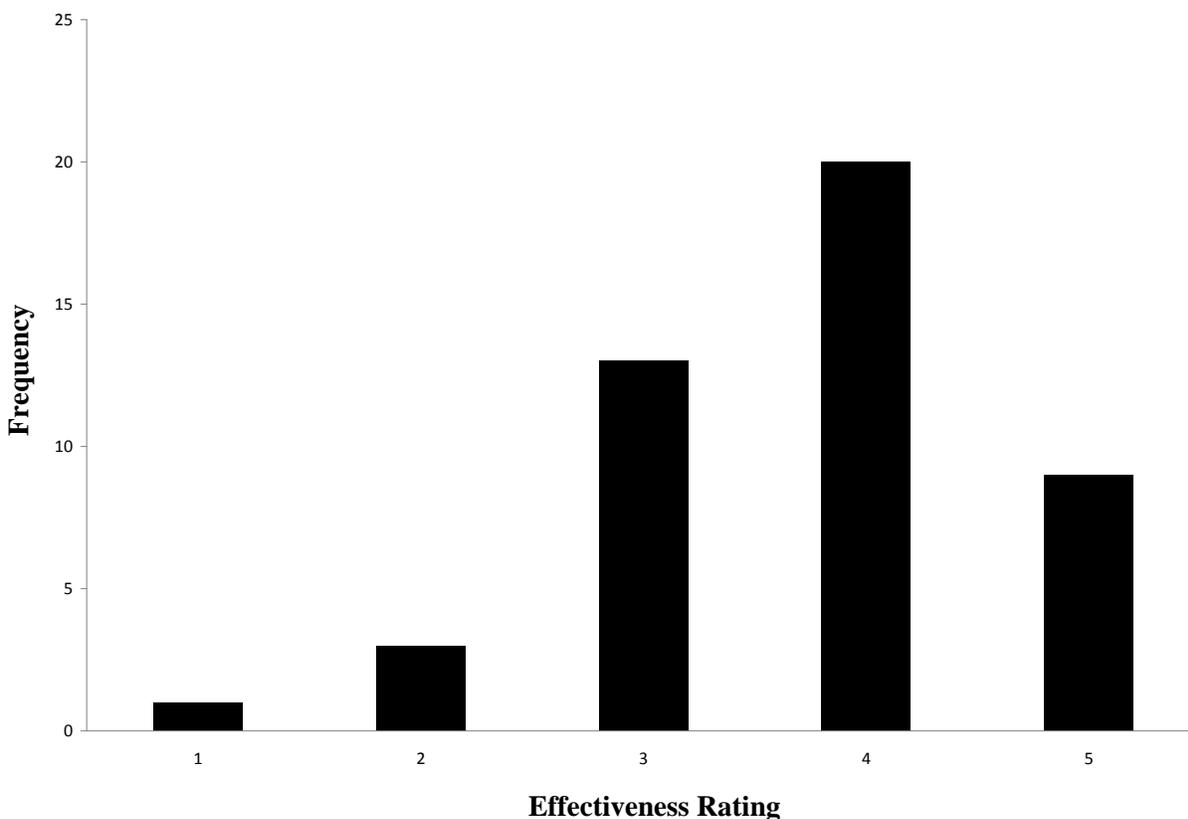


Figure 3. Frequency of Participants' Ratings of TO Effectiveness (5-point Likert-Type Scale, 1= Not at all effective, 3=Somewhat effective, 5= Very effective)

Participants were then asked to identify reasons that TO is effective for some families. The question was open-ended. Only 39% of participants mentioned at least one of the empirical parameters of TO reviewed above. Consistency was the only empirical parameter mentioned by a substantial proportion of participants (32%). The remainder of the responses mentioned factors that have not been found to influence the effectiveness TO (e.g. parents' personalities, "it gives parents a break"), gave vague answers that do not specify what makes TO an effective punishment (e.g. it is done correctly, it is a consequence), or were only mentioned one time. Of the participants who mentioned factors unrelated to TO effectiveness, a substantial proportion

(21%) stated that TO is effective because children think or talk about their behavior, and many participants (13%) mentioned that child factors (e.g. “Children are different”) determine whether TO is effective.

When asked why TO is ineffective for some families, participants responded markedly differently than when asked why TO is effective, in general, as a disciplinary procedure. Seventy-five percent of all parents mentioned at least one of the empirical parameters of TO. Lack of consistency was again the only empirical parameter cited by a substantial proportion of participants (66%). Several responses that are unrelated to the effectiveness of TO were also provided by participants. Child factors (e.g. “Some children are not bothered by TO”) and failure to reason with the child were each mentioned by 11% of participants.

Overall, when asked about the effectiveness of TO, the majority of mothers did report finding the technique highly effective. However, they were largely unable to articulate why the technique is effective, with the exception of consistency, which most mothers did relate to effectiveness, despite the fact that most mothers had reported using the procedure only intermittently. Interestingly, mothers were much better able to at least partially articulate why TO is ineffective for some families, with the majority of respondents citing at least one empirical parameter of TO in their responses.

Summary of analysis of Hypothesis One.

In summary, participants’ scores on the vignettes and TOQ suggested that the TO procedures used by mothers who are untrained in TO differ considerably from empirically ideal TO procedures. Relatively few participants reported adhering to the majority of parameters that have been shown to make TO effective, and relatively few participants identified empirical parameters that make TO effective or ineffective with one exception. The only empirical

parameter identified by a substantial proportion of participants was consistency. Therefore, Hypothesis One, that significant differences exist between parents' definitions and use of TO and the empirical definition of TO, was confirmed.

Quantitative Analysis of Hypothesis Two

Is a less accurate understanding of TO associated with more child behavior problems?

The second hypothesis was that mothers who have a less accurate understanding of TO would report more behavior problems in their own child. To test this hypothesis, several different measures were used as the independent and dependent variables. The number of errors in TO procedure correctly identified from the vignettes and TOQ scores were used as measures of TO accuracy (the independent variable). The various items that make up the TOQ had differing numbers of response categories. In order to weight each item equally, responses were converted into z-scores and then added. These "standardized" scores are used in the models below. The average ECBI Intensity Score and the average ECBI Problem Score on behaviors punished with TO were used in some analyses to indicate levels of child problem behavior (the dependent variable). The average ECBI Intensity and Problem Scores for all behaviors, not just those punished with time out, were also used in some analyses as measures of child problem behavior. Covariates included in all analyses were BDI scores (a measure of maternal depression), PSI scores (a measure of parenting stress), and Hollingshead Four Factor Index score (a measure of SES). These covariates were chosen because each has been previously shown to significantly predict child behavior problems.

Eight regressions were conducted in attempt to test Hypothesis Two. None of the regression models found statistically significant main effects nor interaction effects once

covariates were controlled for. Only parenting stress levels (as measured by the PSI) were significantly correlated with levels of child problem behavior. Table 4 displays the results of the simple regressions using number of errors correctly identified in the vignettes and the standardized TOQ scores as the independent variables. Table 5 displays results of a multiple regression using depression, stress, and SES as the independent variables. The results of these tests do not support Hypothesis Two.

Table 4

Effects of Number of Errors Correctly Identified in the Vignettes and TOQ Score on Average ECBI Scores

Variable	ECBI Intensity- Behaviors Punished w/ TO	ECBI Intensity- All Behaviors	ECBI Problem- Behaviors Punished w/ TO	ECBI Problem- All Behaviors
Vignettes	-.101	-.045	-.010	.006
TOQ	-.057	-.001	-.013	.010

* indicates significant at .05 level.

Table 5

Effects of Depression, Stress, and SES on ECBI Scores

Variable	ECBI Intensity- Behaviors Punished w/ TO	ECBI Intensity- All Behaviors	ECBI Problem- Behaviors Punished w/ TO	ECBI Problem- All Behaviors
BDI	-.015	-.018	-.006	-.002
PSI-SF	.031*	.022*	.010*	.005*
SES	.009	.007	-.002	-.001

* indicates significant at .05 level.

Post-Hoc Analyses

Do mothers who use more effective TO procedures use TO more frequently?

While analyzing the data to address hypothesis two, I noted that participants who used TO procedures closer to the empirical standard appeared to use TO to punish a greater number of types of behavior. A post-hoc analysis was thus articulated and confirmed. The tendency for

effective TO users to employ the punishment more often can be seen in Table 6, which reports results from a Poisson regression model treating the number of behaviors punished with TO as the dependent variable. Poisson regression is appropriate when the dependent variable is a count (non-negative integers) in the same way logistic regression is appropriate when the dependent variable is dichotomous (e.g. yes/no). The results show that participants use TO more often both when they score higher on the standardized TOQ scale and when they can identify more errors in the vignettes. This occurs even when controlling for stress (significant) as well as depression and SES (not significant).

Table 6

Effects of TO Accuracy on the Number of Behaviors Punished with TO, Controlling for Depression, Stress, and SES

Variable	Model 1: Time Out=TOQ	Model 2: Time Out=Vignettes
Time Out Measure	.065*	.085*
BDI	.016	.007
PSI	.013*	.012*
SES	-.004	-.002

* indicates significant at .05 level.

The coefficients indicate the effect of a one-unit change in the independent variables on the log of the expected outcome. Thus, they are easier to interpret when exponentiated. A one-unit improvement on the TOQ scale raises the expected count of behaviors punished with time out by $\exp(.0651) = 1.067$. Identifying one additional error in the vignettes leads to an increase equal to $\exp(.085)=1.089$. Note also that the PSI score is also significant, with higher stress associated with increased usage of time out.

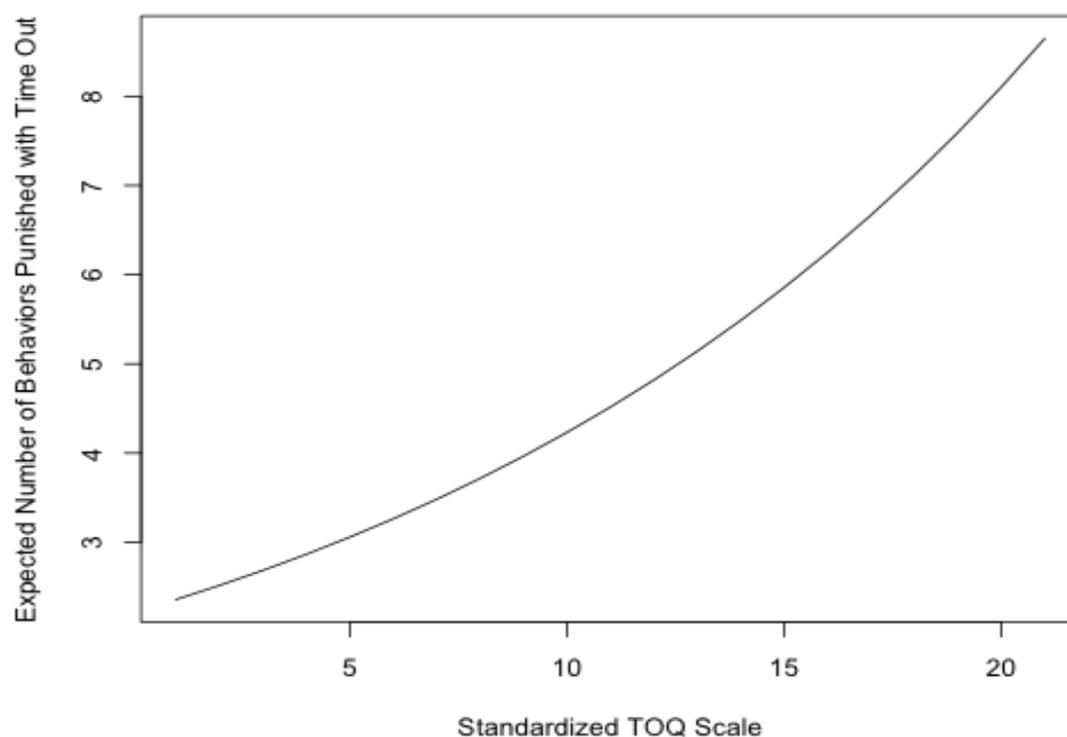


Figure 4. Effect of TOQ on frequency of TO

Figure 4 demonstrates the size of the effect of TOQ across the range of responses. A person scoring lowest on the scale (least competence in TO) is expected to only use time out on 2 to 3 types of behavior. A person scoring on the high end of TO competence will use time out on between 8 and 9 types of behaviors. In sum, effective usage of time out seems to be highly related to its increased usage.

Do participants who find TO to be more effective use TO more frequently?

Based on these findings, it was then hypothesized that participants who implement TO procedures closer to the empirical ideal use TO to punish more behaviors because they have found TO to be more effective than mothers whose TO procedures are less similar to the empirical ideal. Table 7 shows results from a Poisson regression, this time with maternal perception of the effectiveness of time out as a predictor of the number of behaviors punished

with TO. The estimates, with the exception of BDI, are all significant. Higher scores on the effectiveness of TO variable and PSI scale correspond to more behaviors punished by TO; higher scores on SES are significantly related to a lower number of punished behaviors.

Table 7

Effects of Perception of TO Effectiveness on the Number of Behaviors Punished with TO, Controlling for Depression, Stress, and SES

Variable	Estimates
Rating of TO Effectiveness	.391*
BDI	.006
PSI	.021*
SES	-.012*

* indicates significant at .05 level.

Figure 5 illustrates the substantive impact of the effectiveness variable.

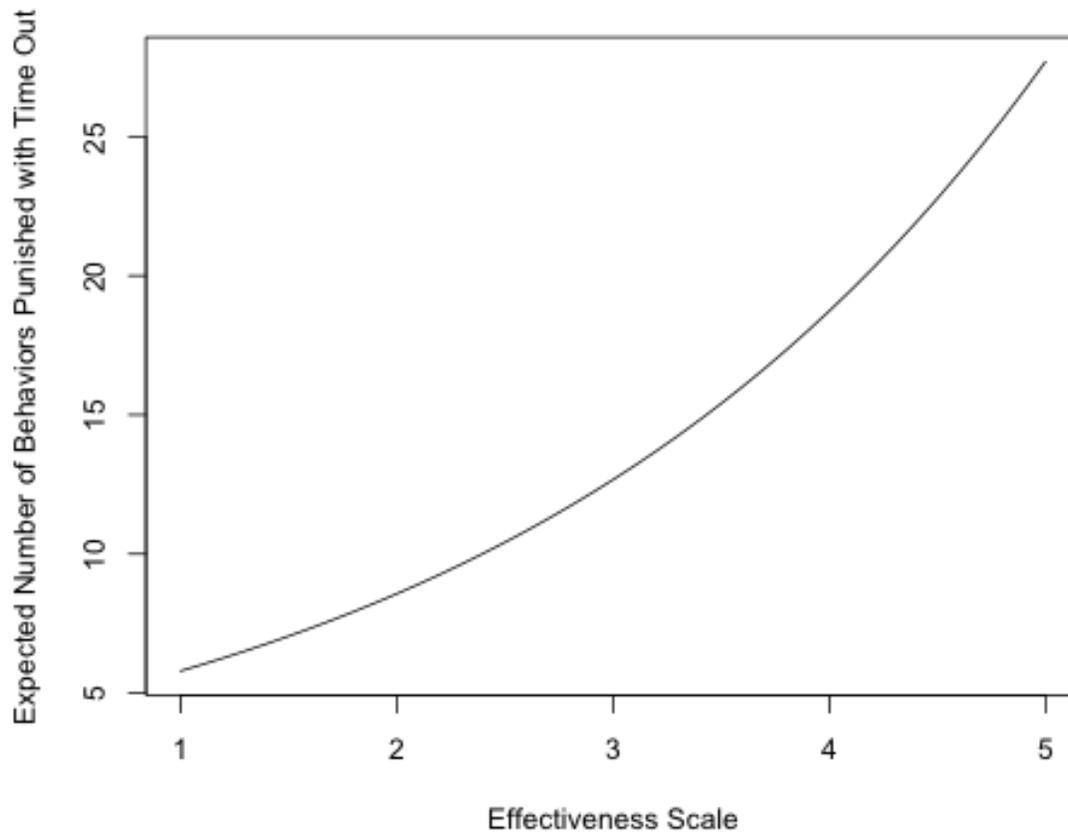


Figure 5. Perceptions of TO effectiveness and TO usage

Summary of post-hoc analyses.

In summary, participants who use TO procedures closer to the empirical ideal (according to their responses to the TOQ and vignettes) and who perceive TO as more effective use TO to punish a significantly greater number of child problem behaviors. These results were robust and persisted after controlling for maternal depression, parenting stress, and SES.

Discussion

Review of Results

A higher proportion of participants in the current study reported using TO with their children than did participants in previous studies. In the present study, 96% of participants reported using TO, whereas previous studies found that TO was used by 45-85% of participants (Barkin et al., 2007; Caughy et al., 2003; Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004). The majority of mothers who participated in the study (63%) believe TO has been effective for their families. An additional 28% believe that TO has been somewhat effective. The average rating of TO effectiveness in the current study was higher than was found in a previous study that utilized a similar 5-point Likert-type scale (Norton et al., 1983). This is likely due to the characteristics of the participants in the current study, who were of higher average SES, more likely to be married, had slightly lower levels of depression and stress, and were less likely to have children with clinically significant problem behavior than the general population. All of these factors are associated with higher rates of success in PMT (e.g. Beauchaine, Webster-Stratton, & Reid, 2005; Fernandez & Eyberg, 2009; Lundahl, Risser, & Lovejoy, 2006; Reyno & McGrath, 2006; Webster-Stratton, 1990).

Our first hypothesis, that mothers who have not received training in TO would report conceptualizations and use of TO that differ significantly from the TO discussed in the empirical literature, was supported by the findings. More specifically, only two of the 55 mothers understood the purpose of TO, which is removal of the child from a reinforcing environment to a less reinforcing environment. Many more mothers conceptualized TO as a punishment or consequence, a method of teaching that certain behavior is inappropriate, or an ineffective strategy if not used correctly. These are all accurate statements. However, nearly all of the

mothers were not aware why TO is an effective punishment/consequence, how TO teaches that behavior is inappropriate, or what are “correct” TO procedures. It is possible that these vague conceptualizations may lead to the use of less effective TO procedures. Indeed, participants in this study were not able to well-articulate and did not adhere to the majority of important parameters of TO. Relatively few mothers reported using an appropriate TO location, initiating TO after only one instruction (which minimizes the delay between behavior and consequence), releasing the child from TO only when calm, applying TO consistently to problem behavior, and making the child comply with the original command following TO. However, the majority of mothers reported that their child is not allowed to engage in any activities during TO, escape from TO, or decide when TO is over. The majority of mothers also report using a TO of moderate duration.

When asked why TO may be effective or ineffective for some families, a large proportion of mothers stated that consistency was an important factor. Consistent application of TO is indeed a very important factor in effective TO (Clark et al., 1973; Forehand, 1985), and inconsistent discipline is an important predictor of the development of disruptive behavior problems (Bird et al., 2001; Eddy et al., 2001; & Gardner, 1989). Kaminski et al. (2008) found that PMT programs that include instruction in TO and consistent responding to problem behavior were more effective in reducing child externalizing behavior than were PMT programs that did not include these components. Consistency was the only empirical parameter of TO identified by a majority of mothers, but, despite this knowledge, the majority of mothers did not rate themselves as being very consistent in the administration of TO.

Mothers in the study also reported many false beliefs about the effectiveness of TO that are not supported by previous research. Child factors, such as temperament and personality, were

mentioned by slightly more than 10% of mothers, and, while there is evidence that child factors are related to the development of behavior problems (Bates et al., 1998; Hirshfeld-Becker et al., 2002; Olson et al., 2000), there is no evidence that child factors are related to the effectiveness of TO. In previous studies of parental perceptions of TO effectiveness, parents thought that TO is less effective if the child's behavior problems are more severe (Riemers et al., 1991) or the child is too young or old for TO (Norton et al., 1983). No mothers in the present study mentioned either of these factors as influencing the effectiveness of TO. In addition, slightly more than 10% of mothers in the present sample stated that TO is ineffective because parents fail to provide a reason for the TO or fail to talk to the child about their behavior, but previous studies have found that providing children with a brief, verbal reason for being placed in TO does not increase or decrease the efficacy of TO or reduce children's resistance to TO (Alevizos & Alevizos, 1975; Gardner et al., 1976).

The second hypothesis, that mothers who have a less accurate understanding of TO will report more behavior problems in their own child, was not supported by the findings. No significant relationship between the measures of TO accuracy and levels of child problem behavior were found when either the number of errors in TO administration in the vignettes or the mothers' self-reported TO procedures was used as the independent variable. No relationship was found when either the ECBI Intensity Scale or the ECBI Problem Scale was used as the dependent variable. Similarly, no relationship was found when either the behaviors mothers reported disciplining with TO or all of the behaviors listed on the ECBI was used as the dependent variable.

One possible reason for the lack of relationship between maternal TO accuracy and levels of child problem behavior is the nature of the sample used in the current study. The sample was

far wealthier, more educated, more likely to be married, and more likely to be stay-at-home mothers than the general population. It is possible that the resources afforded these mothers allow them to maintain a notably enriched natural environment such that it may provide a significant contrast with the TO environment, even though the mothers in this sample are not providing a sufficiently neutral TO environment according to empirical standards. To that end, Fabiano et al. (2004) found that exclusion and nonexclusion TO procedures could be equally effective in classroom and recreational settings when all non-TO environments were rich in reinforcement, which demonstrates that less restrictive TOs can be effective in the context of highly enriched natural environments.

Another explanation for these non-significant findings is that the reliability and validity of the measures of TO used in the study are unknown. No validated instruments for measuring TO practices and beliefs exist, despite the fact that this is a commonly used disciplinary procedures. Therefore, the TOQ and the vignettes were created for use in the study based on a review of the literature, but the relationship between these instruments and the TO procedures actually used by mothers is unknown. A small correlation was found between the vignettes and the standardized TOQ scale (Cohen, 1988), and the correlation between these instruments and direct observation is unknown. It is also unknown which of these two measures created for the purpose of this study was more predictive of actual TO behavior in mothers.

One specific problem noted with the TOQ was the drastically different responses provided by mothers to slightly different questions. When asked what makes TO effective for some families, only 39% of mothers mentioned at least one empirical parameter of TO. In contrast, when asked what makes TO *ineffective* for some families, 75% of mothers mentioned at least one empirical parameter. This suggests that the way mothers are asked about TO, and

possibly the order of the questions on the instrument, changes their responses considerably and speaks to the need for additional instrument development.

An additional problem is that the most important parameter in determining TO efficacy, contrast in available reinforcement between the natural environment and TO (Shriver & Allen, 1996), was difficult to depict in the vignettes, and a strategy to assess the quality of the natural environment on the TOQ was never found. Either a sound strategy must be found to include reinforcement in the natural environment in indirect measures of TO administration or direct observation of this variable should be utilized in future studies. For example, one strategy that has been used to assess quality of parent-child interactions is to record the frequencies of positive and negative statements made by mothers to their children using the Dyadic Parent-Child Interaction Coding System (DPICS), which has well-established psychometric properties (Robinson & Eyberg, 1981).

Based on the extant literature, we expected SES to be negatively correlated with level of child problem behavior (Cuffe et al., 2005; Heinrichs et al., 2005), and maternal depression and level of stress to be positively correlated with level of child problem behavior (Deater-Deckard et al., 1998; Keenan & Shaw, 1994; Shaw, Owens, Giovannelli, & Winslow, 2001). The expected relationship between parenting stress and child problem behavior was found, but SES and maternal depression were not found to be significantly correlated with child problem behavior. The lack of a significant relationship between SES and child behavior in this study may be due to the restricted range of participants' SES, which was disproportionately high. It is not clear why the maternal depression was not significantly related to child problem behavior. The rate of clinically significant depression amongst participants in this study is similar to the point prevalence of major depressive disorder for women in the general population (*DSM-IV-TR*,

2000). It may be hypothesized that, given that the present sample was privileged in many ways, those factors served to buffer the effect of maternal mental health status on child behavior.

Although we did not find the expected relationship between accuracy of parental TO and child behavior, we did find a robust relationship between accuracy of TO and the number of child behaviors mothers reported punishing with TO. The closer a mother's self-reported TO procedure was to the empirical ideal and the more errors in TO procedure a mother could identify in the vignettes, the more child behaviors she reported using TO to punish. A potential explanation for this finding is that mothers who have a TO closer to the empirical ideal find it to be more effective and therefore use it more often. These findings are consistent with previous findings that parents are more likely to use TO following training in its proper use (Caughy et al., 2003). This could be useful clinically in that even in families where TO is marginally effective, helping families improve their use of this technique could clear a path for parents to generalize an already useful skill, rather than attempting to broaden their disciplinary repertoire unnecessarily.

Implications

The results of this study indicate there is a lot that mothers do not understand about the behavior analytic procedure of TO. Despite the differences between empirical TO and TO as it is understood and used by mothers, a large proportion of mothers use TO and find it to be effective. Perhaps for parents like those represented in the current study (i.e. high SES, married, stay-at-home mothers), an empirically perfect TO is not necessary to effectively punish misbehavior. The results also suggest that an accurate understanding of why TO is an effective punishment is not necessary in order for TO to be effective for some families. For example, the vast majority of mothers in the current study reported that their child is not allowed to engage in any activities

during TO. This was somewhat surprising given that very few mothers were able to articulate restricted access to reinforcement as a rationale for the effectiveness of the procedure. Instead, the most frequent belief expressed by mothers was that the purpose of TO is for the child to calm down and think. This suggests that mothers may restrict access to activities because they believe such activities distract the child from thinking about their behavior during TO. Despite this difference between the maternal rationale and the empirical rationale for restricting activities, the resulting decrease in the level of reinforcement available provides the same benefit.

How can this information about how parents conceptualize and use TO be used by clinicians? Clinic-referred parents may be skeptical about the usefulness and acceptability of TO (Jones et al., 1998; Reimers et al., 1991), and parents who are skeptical may drop out before completing the PMT program (Pemberton & Borrego, 2007). Clinicians therefore may need to “sell” the behavior analytic technology of TO to skeptical parents by utilizing concepts and language that are familiar to parents (Allen & Warzak, 2000). The information on maternal TO gained from the current study could help clinicians identify such concepts and language. For example, parents may not generally consider teaching children by directly altering environmental contingencies but instead think of teaching as being mediated by language, hence, the large proportion of mothers in the current study who believe that the purpose of TO is for the child to think about their behavior. It is possible that a clinician could better “sell” the requirement that all forms of stimulation be restricted during TO by explaining that the child must not be distracted from thinking about what they have done wrong rather than by explaining the importance of contrasting levels of reinforcement in the time-in and TO environments.

The finding that a large proportion of mothers are aware of the importance of administering TO consistently but a much smaller proportion of mothers report using TO

consistently may also be useful information for clinicians. Many clinicians emphasize the importance of consistency, and research has found this to be an important component in PMT programs (Kaminski, 2008). However, merely discussing the importance of consistency may not be helpful for parents who are already aware that consistent administration of TO is important. Clinicians may also need to spend a considerable amount of time helping parents to identify barriers to consistent TO administration and strategies to overcome those barriers. For example, some parents experience considerable distress when their child cries during TO. Parents may therefore only use TO when they are “fed up” after repeated instances of the same problem behavior. The parents fail to administer TO consistently in an attempt to avoid or delay episodes of crying. In such a situation, teaching the parents strategies to help cope with distress, such as listening to music through head phones or deep breathing relaxation, may increase the consistency with which they administer TO.

Finally, the findings in this study about mothers’ beliefs about and use of TO could be used to develop a screening instrument for use by clinicians who frequently teach parents effective TO strategies. Such an instrument could allow clinicians to quickly determine language and concepts that correspond to parents’ currently held beliefs about TO and could be used to better “sell” TO. Additionally, such an instrument would allow clinicians to quickly identify the parameters of TO on which parents are farthest from the empirical ideal and emphasize those areas.

Limitations and Future Directions

As discussed above, one limitation to this study was the development/use of measures of TO accuracy with unknown psychometric properties. It is unknown whether the measures accurately or reliably assess the variables they were intended to assess. This study could be

repeated and strengthened by using direct observation of parents administering TO in place of or in addition to self-report and vignettes. Future research should also focus on the creation of standardized, psychometrically sound instruments to assess TO accuracy efficiently because studies utilizing direct observation are time and labor intensive, which can be prohibitive for many researchers. The creation of alternative measures would allow more studies of TO effectiveness and parental use of TO to be conducted.

An additional weakness is that only one method of measurement and one informant was used to assess child problem behavior in the present study. It is possible that the ECBI did not include some of the problem behaviors that mothers punish with TO. The use of only mothers' report of child behavior may have been biased by demand characteristics to appear to be competent mothers. The inclusion of the report of an additional adult (e.g. daycare provider, father) or direct observation of the frequency of child problem behavior would have strengthened the findings.

Another obvious limitation is that the sample was highly unrepresentative of the United States population. Participants were ethnically homogeneous and had higher family incomes and more education than the general population. Participants were also more likely to be married and to be stay-at-home mothers. The skewed nature of the sample makes the generalization of the results questionable to parents who differ demographically. Also, a community sample was used in the study. This limits the generalizability of the results to a clinical population. The beliefs of parents who are referred to outpatient clinics due to child problem behavior may have different beliefs about TO and different TO practices than the parents who volunteered for this study. Future research should examine the parental beliefs about and use of TO in families who have been referred for behavioral health services. Additionally, the sample included only mothers, and

the degree to which the findings apply to fathers is unknown. Fathers' beliefs about and use of TO should be studied in the future. A final limitation is that the study used correlational and descriptive statistics, and, therefore, causation cannot be determined.

Summary

Despite these limitations, the study provides initial, exploratory findings on parents' beliefs about and use of TO, one of the most commonly used disciplinary procedures. TO has been researched extensively and found to be incredibly efficacious when used by those trained in empirical TO procedures. However, the conceptualization, use, and effectiveness of TO administered by parents who are not trained in conducting TO according to empirically-established criteria had not been previously examined. This study is the first of its kind to examine the breach between effectiveness and efficacy in the area of parent-administered TO and therefore makes a demonstrable contribution to the parenting literature. This information may provide clinicians with new ideas about how to present TO to parents and which parameters of TO to emphasize. Future research should be conducted as to whether presenting TO in certain ways or spending additional time emphasizing different TO parameters improves parental adherence to the TO portion of PMT and whether this alters the effectiveness of TO in decreasing child problem behavior. Given the widespread use (and misuse) of TO by those who have not been trained in empirical TO procedures and the relatively high proportion of children with disruptive behavior disorders in the caseloads of child psychologists, clinicians need to learn what typical parents know and do not know about TO and how to most effectively communicate this technical procedure in ways that parents can understand and internalize. In this way, one of the most powerful disciplinary procedures can be taught to the greatest number of people.

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Appendix A

Demographics

1. What is your age? _____
2. What is your gender? _____ Female _____ Male
3. Please provide the first names, ages, and gender of your children:

Name	Age	Gender
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. What is your current marital status?

Married Live with partner
 Separated Divorced
 Single Widowed

5. How many years of education have you completed?

Less than 7th grade
 Middle school (7-9th grade)
 Partial high school (10th or 11th grade)
 High school graduate
 Partial college (at least one year) or specialized training
 College graduate
 Graduate degree

6. What is your current work status?

_____ Homemaker _____ Student

_____ Working, part-time _____ On disability or extended medical leave

_____ Working, full-time

If employed, what is your job? _____

***If you are not married, separated, or living with your partner, please skip to #7.**

7. How many years of education has your partner completed?

_____ Less than 7th grade

_____ Middle school (7-9th grade)

_____ Partial high school (10th or 11th grade)

_____ High school graduate

_____ Partial college (at least one year) or specialized training

_____ College graduate

_____ Graduate degree

8. What is your partner's current work status?

_____ Homemaker _____ Student

_____ Working, part-time _____ On disability or extended medical leave

_____ Working, full-time

If employed, what is his/her job? _____

9. What is the number that most closely corresponds to the total yearly income of your household?

_____ \$0-\$1,999

_____ \$2,000-\$2,999

_____ \$3,000-\$3,999

_____ \$4,000-\$4,999

_____ \$5,000-\$6,999

_____ \$7,000-\$9,999

_____ \$10,000-\$14,999

_____ \$15,000-\$19,999

_____ \$20,000-\$29,999

_____ \$30,000-\$39,999

_____ \$40,000-\$49,999

_____ \$50,000-\$59,999

_____ \$60,000-\$69,999

_____ \$70,000-\$79,999

_____ \$80,000-\$89,999

_____ \$90,000-\$99,999

_____ \$100,000 or more

Time-Out Questionnaire

INSTRUCTIONS: If you have more than one child, please select the child who is/has been most difficult to raise. Please think of this child when considering your answers. If you have never used time-out with any of your children, answer the following questions for the child who receives punishment most frequently. **THE CHILD SELECTED FOR THIS QUESTIONNAIRE SHOULD BE THE SAME AS THE ONE IDENTIFIED ON THE OTHER QUESTIONNAIRES.**

Please write the child's name for whom you are answering these questions: _____

1. What do you believe is the purpose of time-out?

.

2. Have you ever used time-out with your child? (please circle one) YES NO

IF NO, PLEASE ANSWER QUESTIONS 3-6 TO REFLECT HOW YOU BELIEVE TIME-OUT SHOULD BE CONDUCTED.

3. Where does the child go for time-out? (e.g. a corner in the living room, the stairs going to the 2nd floor, their bedroom, etc.)

4. When your child is in time-out, is there a lot of activity going on around him or her?

1	2	3	4	5
No activity (the child is isolated)		Some Activity		Lots of Activity (people are talking, the child can hear the TV, etc.)

5. What, if anything, does your child do during time-out? (e.g. talk to others, read a book, watch TV, play with toys, hold the cat, etc.)

6. What signals the end of time-out? (e.g. after a set period of time has passed, when the child apologizes, when the child is calm, etc.)

7. Do you allow your child to end TO him/herself or does an adult let him/her out?

8. On average, how long does time-out last for your child? _____

9. What do you do if your child leaves the time-out area before he or she is “ready”?

IF YOU ANSWERED NO TO #2, PLEASE ANSWER #10 TO REFLECT HOW EFFECTIVE YOU THINK TIME-OUT IS *IN GENERAL*.

10. How effective do you think time-out has been for your family?

1	2	3	4	5
Not at all Effective		Somewhat Effective		Very Effective

11. Why do you think time-out is effective for some families?

12. Why do you think time-out is ineffective for some families?

13. On average, how many times do you tell your child to do something (e.g. “Pick up your toys.”; “I told you twice already to pick up your toys.”) before they comply, are punished, or you give up? (Circle one)

Once	2-5 times	6-10 times	More than 10 times
------	-----------	------------	--------------------

14. How consistently do you use punishments for misbehavior, including time-out?

1	2	3	4	5
Very Inconsistently (Child usually misbehaves without consequence)		Somewhat Consistently (About 50% of misbehavior receives a punishment)		Very Consistently (Misbehavior almost always receives a punishment)

Vignette Work Sheet

Please identify all of the errors that you believe the mother in the video has made.

Vignette #1:

Vignette #2:

Vignette #3:

Vignette #4:

Appendix B

Coding Categories for Items on the Time-Out Questionnaire

- Item #1: Purpose of TO:
 - (Empirical Definition: removal of the child from a reinforcing environment to a less reinforcing environment.)
 - (1)= retain the meaning of the empirical definition and are likely to include the words “reinforce,” “reward,” “boring,” or “does not like”
 - (0)= Dissimilar answers will not retain the meaning of the empirical definition and are likely to include the phrases or words “calm down” or “think.”
- Item #2: Use of TO
 - Yes (1), no (0)
- Item #3: Where TO is located. (If more than one location is listed, score the more likely spot if there is some indication. If there is no indication, give the higher score.)
 - (2)= very little social, sensory, or material reinforcement is likely to be available. Examples: foyer, staircase, upstairs hallway, basement
 - (1)= moderate level of social, sensory, and/or material reinforcement is likely Examples: corner of the living room, parents’ bedroom
 - (0)= high level of social, sensory, and/or material reinforcement is likely Examples: child’s bedroom, sibling’s bedroom, living room couch
- Item #4: Activity level around the child in TO.
 - Reverse score according to the scale on the questionnaire
- Item #5: Child’s activities in TO.
 - No activities or self-stimulation, e.g. fidget, cry, talk to self, talk to parent but parent does not respond (1), ≥ 1 activity (0)
- Item #6: How TO ends. (If more than one is listed, give highest score)
 - child is calm (2), minimum sentence (1), any other answer (0)
- Item #7: Who ends TO.
 - *parent* allows the child to leave TO (1), *child* releases him/herself (0)

- Item #8: TO duration (If a range of time is given, code according to whichever category the majority of time is in, e.g. 5-10 minutes gets score of 1. If time is equal across categories, give higher score.)
 - 3-6 minutes or 1 minute per year of age (2), 7-15 minutes (1), < 3 minutes or >15 minutes (0)
- Item #9: TO enforcement
 - Child receives some consequence for escape from TO or is returned to TO (1), child is allowed to escape without consequence (0)
- Item #10: How effective is TO?
 - Coded according to the scale on the questionnaire
- Item #11: Why is TO effective for some families?
 - Empirically-supported parameters:
 - Enriched natural environment, good parent-child relationship (TI)
 - Low reinforcement in TO (LR)
 - Immediacy (I)
 - No more than one warning (W)
 - Duration of 3-15 minutes (D)
 - Enforcement of TO: consequence or returned if escape (ENF)
 - Parent releases child from TO (PR)
 - Contingent release (CR)
 - Escape extinction (EE)
 - Consistency (C)
 - Child factors, e.g. age, intelligence, personality, etc. (CF)
 - Reasoning, e.g. explain behavior to child, time to think, cool off, calm down (R)
- Item #12: Why is TO ineffective for some families?
 - Child factors (CF), e.g. age, intelligence, stubborn
 - Severity of child behavior problems (SBP)
 - Lack of any of the empirically-supported parameters listed in #8
- Item #13: Immediacy
 - Repeat command ≤ 1 time (1), repeat command ≥ 2 times (0)
- Item #14: Consistency
 - Coded according to the scale on the questionnaire

