

# THESIS

## A TEST OF SOCIAL-COGNITIVE THEORY ON CHILD REARING: ARE MORE AUTHORITATIVE PARENTS HIGHER IN PARENTAL SELF-EFFICACY?

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In partial fulfilment of the requirements

For the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Summer 2023

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## ABSTRACT

### A TEST OF SOCIAL-COGNITIVE THEORY ON CHILD REARING: ARE MORE AUTHORITATIVE PARENTS HIGHER IN PARENTAL SELF-EFFICACY?

Corporal punishment (CP) and harsh parenting behaviors increase the risk of child abuse and are associated with several detrimental outcomes among children. Drawing from the foundations of social cognitive theory and coercion theory, I examined long-term changes in parent self-efficacy (PSE) in relation to changes in child-rearing practices (i.e., authoritative and authoritarian). Using longitudinal data from the prevention program Dare to Be You (DTBY), I found that PSE was a significant predictor of child-centered discipline (authoritative), and harsh punishment (authoritarian). Child-centered discipline was moderated by parent attributions (self-blaming). Harsh punishment was significantly easier to predict, as expected by previous research on coercive cycles, and was explained by parent attributions (i.e., self-blaming and child-blaming), and problematic child behaviors. The effects of the DTBY intervention were also significant, with the long-term use of effective child-rearing strategies mediated through increases in self-efficacy. The implications of findings, especially the significance of coercive cycles and social cognitive processes in child rearing, are discussed. Future research and prevention applications are also noted to further prevent child abuse at large.

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A TEST OF SOCIAL-COGNITIVE THEORY ON CHILD REARING:  
ARE MORE AUTHORITATIVE PARENTS HIGHER IN PARENTAL SELF-EFFICACY?

Corporal punishment (CP) has been a controversial topic for decades (Baumrind, 1996; Gershoff, 2013). Defined as spanking or any physical method used to correct a child's behavior, the use of CP has been linked to several detrimental outcomes among children: mental health problems, increased risk of physical abuse, low self-esteem, externalizing/internalizing behavior problems, and impaired cognitive ability (Gershoff & Grogan-Kaylor, 2016). Given these long-term outcomes, research on CP would benefit from more investigations of what contributes to parents' use of potentially harmful practices, such as their emotion regulation (Sevigny & Loutzenhiser, 2010; Gershoff, 1999; Straus & Mouradian, 1998), attributions about the child's behavior (Berliner et al., 2019; Coleman & Karraker, 2004; Cutrona & Troutman, 1986; Schulz et al., 2018), and parental self-efficacy (PSE) (Duong, et al., 2021). PSE, broadly defined as parents' self-appraisal of their own competency in a parental role, has been found to be a mediating variable between problematic child behaviors and the use of effective discipline strategies (Benedetto & Ingrassia, 2018; Schulz et al., 2018; Sevigny & Loutzenhiser, 2010). To be discussed in depth in the following section, PSE is based on Bandura's (1986) theory of self-efficacy. Furthermore, Bandura's (1986) research on the impact of modeling implies that children replicate the emotional and behavioral patterns of their parents, for better or for worse.

However, despite the few studies that have found associations between PSE and CP, gaps remain in the literature (Dumka et al., 2010; Duong et al., 2021; Tarver et al., 2019). There is not a substantial amount of research that has established a direct link between PSE and CP, let alone PSE and the use of other disciplinary practices. However, individuals who are high in general

self-efficacy tend to be persistent when it comes to solving complex problems, especially those that do not yield immediate results, which would be descriptive of authoritative child rearing (Bandura, 1977b; Baumrind, 1966; Mayseless et al., 2003). In contrast, those who subscribe to authoritarian methods of child rearing often resort to coercive, power-assertive, and physical means of punishment (Baumrind, 1966; Duong et al., 2021; Lansford et al., 2014; Mayseless et al., 2003).

Using longitudinal data from the prevention program DARE to Be You (DTBY), I aim to address this gap, by examining changes in PSE in relation to changes in child-rearing practices, particularly those involving punishment. In practical terms, this study's findings could inform intervention programs that support parents' use of authoritative rearing practices, in turn mitigating the negative developmental outcomes associated with methods of discipline such as corporal punishment.

## **Theoretical Framework**

### *Self-Efficacy*

The theoretical framework for this research project relies heavily on Bandura's (1977a) self-efficacy theory. However, other perspectives pertaining to self-perceptions of competence exist and contrast to that of Bandura (1977a) such as Harter's (2015) *The construction of the self*. Unlike Bandura's (1977a) situationally specific self-efficacy, Harter (2015) states that self-perceptions and appraisals are broad and influenced by a greater sociocultural framework. Given that the focus of this study is specific to child-rearing practices and self-appraisals related to the parental role, I will focus on Bandura's (1977a; 1986) self-efficacy theory more than on Harter's (2015) general perspective on self-perceptions.

The primary building blocks of social cognitive theory include the mutual interactions between individuals' behavior and their environment; information processing, especially self-referential thought; the pervasiveness of self-efficacy as a motivator and predictor of behavior, and the influence of various sources of information that determine efficacy and expectancy; and the degree of likelihood one believes they will be able to achieve a specific outcome. According to Bandura (1977a), individual behavior is the result of information being processed about the self, the environment, and the possible consequences of said behavior. I hypothesize that parent self-efficacy is associated with success in managing child behavior through power-assertive versus child-centered methods of discipline, and that this relation is dependent on the attributions parents make (i.e., self-referent thought) about whether they or the child are responsible for failure or success in achieving a specific outcome (i.e., expectancy). An example of this is coercive cycles, which I will delve into in a later section.

Bandura's (1977a; 1986) theory suggests that learning occurs through processing experiential, observational, and symbolic information. That is, both direct and vicarious experiences contribute to individual behaviors. However, Bandura (1977b) stated that individual behavior is rooted in outcome and efficacy expectations. In short, due to cognitive processing, people's perception of their ability to achieve an outcome, along with their anticipated outcome, are predictors of behavioral outcomes rather than the outcomes themselves (Bandura, 1982). Furthermore, one's perception of their ability to achieve an outcome, or their perception of self-efficacy, is the decisive element in predicting whether an individual will engage and persist in a specific behavior (Bandura, 1977b). Defined as individual beliefs about one's capabilities to achieve a desired level of performance, especially in influencing events that effect their day-to-day lives, self-efficacy is a core variable that mediates the processing of knowledge and behavior

(Bandura, 1982). Bandura (1977b) also suggests that self-efficacy determines how much effort individuals expend in specific contexts, their choice of behaviors, and their persistence. Those with strong self-efficacy expend greater effort to master complex challenges, obstacles, and experiences such as child rearing. Self-efficacy, as described by Bandura (1977b), functions in three dimensions: generality, level (or magnitude), and strength. Generality is the specific range of contexts, behaviors, and situations in which one's self-efficacy applies. Level, or magnitude, is the level of performance people perceive they are capable of. Finally, strength is the level of confidence people have in their own estimations.

Self-efficacy is dependent upon four sources of information: physiological state, verbal/social persuasion, vicarious experience, and performance attainments (Bandura, 1982). Bandura (1982) claimed that performance attainments, or the successful execution of a behavior, lead to the strongest sense of self-efficacy. Specifically, Bandura (1982) argued that the authentic mastery of skills, challenges, or tasks greatly strengthen self-efficacy, with repeated failure having the inverse effect.

### *Parental Self-Efficacy*

Parent self-efficacy (PSE) is defined as parents' self-appraisal of how competent they are as a parent, or the perception parents hold about their own ability to successfully rear their children (Bandura, 1986; Jones & Prinz, 2005). Some researchers have used more precise definitions of PSE, such as a parent's perceived ability to influence the development of their children in every context where development occurs (Crnic & Ross, 2017).

High PSE has been linked to the use of more positive parenting strategies and behaviors (Coleman & Karraker, 1998). Consistent with self-efficacy theory, Coleman and Karraker (1998) found that individual self-efficacy was related to parenting behaviors through the dynamic



interactions between cognitive processing, behavioral pathways, motivation, and affect (Bandura, 1977a; 1986). Furthermore, links between high PSE and positive child-rearing practices have been found, with high PSE often related to more effective parenting practices. For example, high maternal self-efficacy has been related to consistent responsiveness, sensitivity, and warmth toward children, all of which are defining features of authoritative parenting (Baumrind, 1966; Izzo & Weiss, 2000; Lansford et al., 2014; Mayseless et al., 2003; Teti & Gelfand, 1991). In comparison, low levels of PSE have been related to ineffective parenting behaviors such as over reactivity and permissiveness (Sanders & Woolley, 2005; Schulz et al., 2018).

#### *Parent Attributions and Child Difficult Behavior*

The variables that predict and facilitate PSE are largely unknown. However, a few variables have been found to be associated with PSE, such as problematic child behaviors (Coleman & Karraker, 2004; Cutrona & Troutman, 1986; Schulz et al., 2018), parent attributions (e.g., child-blaming and self-blaming) (Mash & Johnston, 1983; Ribiczey et al., 2016), and the perception that an action will lead to the desired outcome, evidenced by the decrease in self-efficacy that occurs after the repeated failure in trying to achieve an outcome, such as altering child behaviors, and when one's level (magnitude) of perceived performance is minimized (Bandura, 1982; Bandura, 1977b; Duong et al., 2021). Thus, this study aims to contribute to our understanding of parent self-efficacy, which not only is a test of social cognitive processes related to effective child-rearing practices but may also have implications for interventions that reduce harsh punishment and coercive cycles.

The relation between PSE and parent attributions, such as self-blaming and child-blaming, is not well-documented. However, in a study by Mash and Johnston (1983), consistent

inverse relations between negative child behaviors and parental self-esteem were found, with child-blaming correlated with lower levels of parent self-esteem. Furthermore, in a study by Márk-Ribiczey et al. (2016), self-blame was found to be a mediating variable between parent self-esteem and parental role satisfaction when levels of PSE were low. These findings are consistent with the definition of PSE, the perception parents hold about their own ability to successfully rear children. If parents have the perception that they are unable to successfully parent or influence their child's behavior (low PSE), they may engage in self-blaming, attributing their child's behavior as an outcome of their incompetence. In theory, these repeated failures and decreased performance expectations for achieving an outcome (e.g., regulating child behavior) will lead to lower general self-efficacy (Bandura, 1982). Furthermore, these domain-specific failures (e.g., parenting) are likely to affect general self-efficacy if the domain is important to the person (Harter, 2015). Similarly, child blaming, attributing child behaviors to the fault and difficulty of the child, would have similar effects on levels of parental competence and overall PSE.

### *Child-Rearing Practices*

Child-rearing practices are categorized into four domains by Baumrind (2013): authoritative, authoritarian, permissive, and disengaged. These domains fall along a spectrum of responsiveness and demandingness (Baumrind, 1966; 1971; 2013). Responsiveness refers to warmth and support for independence, often fostering child individuality and rationality through engaging them in the decision-making process (Baumrind, 2013). Demandingness refers to a parents' willingness to confront and require specific behaviors, such as complying with parental orders (Baumrind, 2013). Highly demanding, nonresponsive parents are defined as authoritarian,

and highly demanding and highly responsive parents are defined as authoritative (Baumrind, 1971).

Within these domains exist a wide range of disciplinary practices that can be categorized into two types: child-centered (authoritative) and harsh punishment (authoritarian) (Baumrind, 1966; 1996; Larzelere, 2013). Authoritative parenting involves reasoning rather than coercion; establishes reasonable and consistent expectations; and is often warm, nurturing, responsive, and child-centered. Conversely, authoritarian parenting is a parent-centered approach that focuses on obedience, discipline, and control. This code of conduct-based approach is highly demanding and does not subscribe to the nurturing, warm, and responsive tendencies that are characteristic of an authoritative parenting style.

#### *Disciplinary Practices*

Power assertion, expressed as discipline through the use of punishment, is foundational to authoritative and authoritarian parenting styles (Baumrind, 2013). An on-going debate exists about the use of power assertion in parenting. Several studies have denoted power-assertive discipline as having detrimental impacts on the well-being of children, especially when expressed as physical punishment (Gershoff, 2002; Lansford et al., 2014; Straus & Mouradian, 1998). However, Baumrind (2013) suggested that the invective view of power assertion is caused by using power-assertive discipline without reasoning, not the generalized use of power assertion specifically. Despite the disagreement between theorists such as Gershoff (2002) and Baumrind (2013), there remains an agreement that power assertion without reasoning is harmful, such as the use of harsh punishment and spanking (CP) (Baumrind, 1996; Baumrind, 2013; Gershoff, 2002). Baumrind (2013) claimed that the use of physical punishment is characteristic of authoritarian parenting. Authoritarian parenting, like some methods of power assertive

discipline and CP, is associated with long-term negative outcomes (Baumrind, 1966; Gershoff, 2002; Lansford et al., 2014; Mayseless et al., 2003; Straus & Mouradian, 1998).

Baumrind (2013) categorized the authoritarian parenting style as having high power assertion with low levels of reasoning. Power assertion, defined by Baumrind (2013), is the force applied by a parent despite the wills of their child. Reasoning is the regulation of child behavior through discussion and argument (Baumrind, 2013). Both authoritative and authoritarian parenting styles are known to utilize high levels of power assertion, according to Baumrind (2013). However, the two child-rearing practices have notable differences in the use of reasoning, with more authoritarian parents requiring children to accept their words and abide by them rather than engaging in dialogue (Baumrind, 1966; Larzelere, 2013). Baumrind (2012) also makes the distinction that power assertion by authoritative parents is confrontive (i.e., outcome-oriented, reasoned, negotiable, and focuses on regulating behavior) whereas power assertion by authoritarian parents is coercive, referring to the use of harsh punishment (i.e., spanking, CP, humiliating, scolding, etc.) to enforce child obedience (Bor & Sanders, 2004; Scaramella & Leve, 2004).

Disciplinary practices, or methods of power assertion, differ between authoritative and authoritarian parenting styles (Baumrind, 2013; Baumrind, 1966; Larzelere, 2013). To discourage unacceptable behavior and encourage the compliance of children, there are two distinct umbrellas of discipline: child-centered and harsh punishment. Commonly associated with authoritative parenting, child-centered discipline involves the use of reasoning, perspective taking, and time-outs. Conversely, authoritarian parenting has been associated with corporal punishment and harsh disciplinary practices: threatening, strictness, and criticizing (Baumrind, 1966; Brenner & Fox, 1999; Robinson et al., 1995).

### *Child-Rearing Practices and Parental Self-Efficacy*

The direct association between child-rearing practices, methods of discipline, and PSE is unclear. However, research has consistently found associations between child behavior and levels of PSE, with levels of PSE often linked to parenting behaviors (Coleman & Karraker, 2004; Cutrona & Troutman, 1986; Sanders & Woolley, 2005; Schulz et al., 2018). For example, a study examining paternal and maternal self-efficacy found that low PSE among mothers was predicted by coercive and hostile parenting behaviors (Murdock, 2012). Furthermore, other research has indicated that child temperament and behavior problems (disruptiveness, impulsivity, disobedience, aggression, etc.) are negatively correlated with PSE and are maintained by coercive parenting behaviors (Benedetto & Ingrassia, 2018; Schulz et al., 2018; Sevigny & Loutzenhiser, 2010).

Coercion theory (CT), derived from Bandura's (1978) social learning theory as well as general systems theory (Granic & Patterson, 2006) and negative reinforcement processes (Patterson, 2002; 2010), suggests that patterns of child behavior and coercive parenting behaviors mutually reinforce each other, thus creating rigid cycles that maintain those same behaviors. For example, in a coercive cycle, if harsh parenting is used in response to a child's problematic behavior such as aggression, and the punishment temporarily stops the problematic behavior, the parent is rewarded for relying on punishment. If, however the child escalates aggression toward the parent and the parent retreats from the interaction, a negative reinforcement cycle can be established such that future instances of child aggression will escalate as will parental reliance on harsh punishment (Scaramella & Leve, 2004). If a desired outcome is not achieved through these coercive cycles, such as child compliance, then a decrease in PSE would be seen due to repeated failure and a decrease in perceived performance (Bandura, 1982;

Bandura, 1977b; Duong et al., 2021). Additionally, the ongoing child behavior problems maintained by the coercive cycles would decrease PSE further, while sustaining the ineffective parenting practices associated with low levels of PSE (Sanders & Woolley, 2005; Schulz et al., 2018). These coercive and harsh parenting behaviors are habitual of authoritarian parenting (Baumrind, 1966; Bor & Sanders, 2004; Duong et al., 2021; Lansford et al., 2014; Mayseless et al., 2003; Scaramella & Leve, 2004). Recent studies have also shown that caregivers who engage in harsh parenting behaviors are more likely to deliver inconsistent punishment, and then escalate to using physical punishment (CP) as a method of discipline (Lunkenheimer et al., 2016).

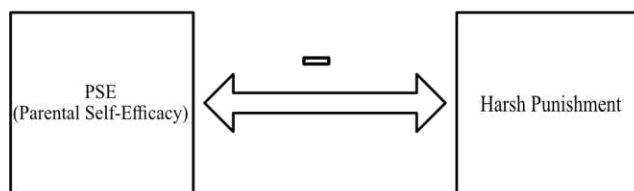
### *The Present Study*

In this study, I will examine these associations between parental self-efficacy and two forms of disciplinary practices: harsh punishment and child-centered discipline. The parent's level of PSE is treated as the predictor variable and the use of child-centered disciplinary practices versus harsh punishment are the outcome variables; child temperament/behavior and parent attributions are examined as moderating variables in the above associations. Unlike previous research, the data for this study stem from a randomized control trial. Thus, I will be able to test for causality amongst intervention effects.

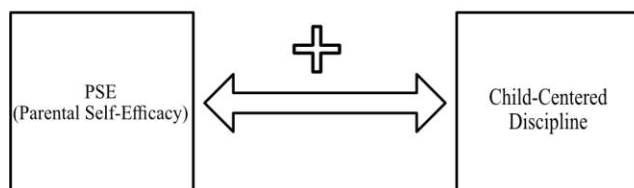
The base hypothesis of this study is that the DARE to be You family-based intervention led to improvements in effective child-rearing strategies and greater parent self-efficacy (PSE). The next hypothesis is that changes in PSE are associated with changes in child-rearing strategies, such that PSE is inversely related to parental use of corporal and harsh punishment (authoritarian practices) (Figure 1.a). I hypothesize that this association is moderated by parent attributions such that child-blaming attributions strengthen the association between PSE and CP

and self-blaming attributions weaken the association between PSE and CP. Furthermore, this association is moderated by child behavior problems, such that greater behavior problems strengthen the association between PSE and CP. These predictions are based on several previous studies that have observed associations between PSE, problematic child behaviors, and disciplinary practices (Benedetto & Ingrassia, 2018; Schulz et al., 2018; Sevigny & Loutzenhiser, 2010).

Furthermore, I hypothesize that levels of PSE are related to the parental use of child-centered discipline (authoritative practices) (Figure 1.b). This prediction is based on the consistent findings of high levels of PSE being related to more positive child-rearing practices (Baumrind, 1966; Izzo & Weiss, 2000; Lansford et al., 2014; Mayseless et al., 2003; Teti & Gelfand, 1991). Also, opposite predictions for moderation are made when child-centered discipline is the outcome variable, although these associations may be weaker given that mothers' sense of competence (i.e., self-efficacy) is more strongly related to difficult child behavior and harsh punishment (MacPhee, Benson, & Bullock, 1986).



**Figure 1.a:** The hypothesized inverse relationship between parent self-efficacy (PSE) and the use of harsh punishment (authoritarian practices)



**Figure 1.b:** The hypothesized relationship between parent self-efficacy (PSE) and the use of child-centered discipline (authoritative practices).

For these hypotheses, age at first birth and child age may be covariates, causing the observed variation in PSE and the use of CP and harsh punishment, with lower levels of PSE and the use of CP/harsh punishment explained by a younger age at first birth, and younger child age – which may be due to younger mothers having less experience and knowledge of effective discipline and child-rearing practices. These two variables—parent and child age—will be included in models as control variables.



## METHOD

### Sample

The information in this section is drawn from the evaluation report to the funder (MacPhee & Fritz, 1995) and a published article about the intervention trial (Miller-Heyl et al., 1998).

This study consisted of five cohorts of participants recruited through convenience sampling from a variety of locations in Colorado: Towaoc, Colorado Springs, the San Luis Valley, and Montezuma County. These participants were identified and recruited to the DARE to be You (DTBY) prevention project through self-referrals and those from local support agencies. Eligible participants (parents) were those who were identified as medium/high risk, defined by the criteria listed in Table 1. Participating families had an average of three major risk factors, 3.1% having more than seven. Some families with no risk factors, but identified as part of a community at risk, were also recruited (7.2%).

**Table 1.** Prevalence of Risk Factors in Participating Families of DTBY

Risk Criterion	Frequency (%)
<i>Parenting risk</i>	
At least one shelter or foster care placement	5.2
Frequent harsh punishment	(8.5)
Prior enrollment in community parenting classes	20.0
<i>Educational risk</i>	
School dropout	33.5
Mother: less than 12 years education	(14.7)
Father: less than 12 years education	(18.7)
<i>Economic risk</i>	
Less than \$15,000 annual income	50.8
Unemployed wage earner	(7.6)
Receipt of welfare	(45.5)
Sought employment agency assistance in last 6 months	(8.7)
Sought financial agency assistance last 6 months	(14.9)
<i>Mental health risk</i>	
Sought individual or family therapy in last 6 months	16.2
Sought other help for family problems in last 6 months	9.7

**Table 1 (continued).**

<i>Substance abuse risk</i>	
Own family has a history of substance abuse	41.1
Spouse's family has a history of substance abuse	41.9
Attended A.A. or AlAnon in last 6 months	4.8
<i>Psychosocial risk</i>	
Teen mother (younger than 20 years)	13.3
Teen father	7.4
Single parent or stepparent	39.4
Social isolate*	2.5
Community at risk**	22.6

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*Note.* \*Co-occurrence of small network, little contact with network, and dissatisfied with support. \*\*Lives in community with documented rate of substance abuse above 90% of population. From Miller-Heyl et al. (1998).

The participants in this study (mothers and fathers) were typically high school graduates ( $M$  education = 12.7 years). The median family income for participants was \$14,500 a year (\$24,567 in 2022 terms), with an average of four people per household. Participants from each location differed racially and ethnically, contributing to an overall diverse sample: 22% Hispanic, 29% Native American, 2% Black, and 45% White. The fathers averaged 31.5 years of age and the mothers 29.7 years of age. Most participants were married (53.7%), the rest were cohabitating (10.7%), single (15%), separated (7%), or divorced (12.6%). Furthermore, the average age at first birth was 22.2 years, with 30% of women having teenage births. The average youngest child of participants was 3.15 years of age, with a mean of 2.4 children per family.

All participants completed a pretest and follow-up survey 1 year after enrolling in the intervention, with only the intervention group completing a posttest at the conclusion of the 12-week program. There was a total of 744 participants who started the DTBY prevention project across all five cohorts: 427 intervention and 272 control participants. However, only data from the first four cohorts ( $N = 463$ ) will be used, given that only cohorts one through four completed the 1-year follow-up.

## Measures

Each variable mentioned was completed at all timepoints. Each assessment was given to parents at the start of the DARE to Be You program, prior to randomization; at posttest 12 weeks after the pretest for the intervention group; and 1 and 2 years after the pretest for all participants (MacPhee & Fritz, 1995). Pretest and Year 2 data were used to impute missing Year 1 data (see below).

### *Self-Perceptions of the Parental Role (SPPR)*

For the purposes of this study, parent self-efficacy (PSE) is defined as a parent's self-appraisal of how competent or skilled they are as a parent. The measure of PSE, one of four scales from the SPPR, is the Competence subscale because it best aligns with the conceptual definition of Bandura's (1977a) self-efficacy theory (MacPhee et al., 1986). Higher scores on this scale represent greater feelings of self-efficacy, with lower scores typically obtained by parents who have greater stress levels and difficult children (MacPhee & Fritz, 1995). Each item is worded as a forced choice that is then rated as "really true for me" or "sort of true for me." An example item is as follows: "Some mothers and fathers think that they are not very effective parents BUT Other mothers and fathers think they are pretty capable as parents." In previous research, the SPPR was demonstrated to have acceptable internal reliabilities ( $\alpha > .78$ ) (Miller-Heyl et al., 1998). Furthermore, the SPPR has ample evidence of its construct and convergent validity such as correlations with other scales that measure PSE (e.g., Harter's measure of adult self-esteem) and aspects of child rearing such as maternal sensitivity and child responsiveness (Bornstein, Hendricks, Haynes, & Painter, 2007).

### *The Parent-Child Relationship Inventory (PCRI; Gerard, 1994)*

The PCRI consists of three scales that indicate child-rearing attitudes and practices: limit setting, consisting of nine items assessing control compared to coercion, along with child defiance; autonomy, consisting of 10 items that indicate the encouragement of independence compared to being protective and permissive; and seven items that represent communication (Miller-Heyl et al., 1998). Furthermore, the PCRI includes composite scales of “maturational orientation,” reversed scored as punitive punishment, and “democratic control” or child-centered discipline (MacPhee & Fritz, 1995). Higher scores on this scale indicate more positive attributes and parent practices, such as consistent democratic control (Miller-Heyl et al., 1998). Internal reliabilities for the PCRI are good overall ( $\alpha = .80-.89$ ) within previous DTBY data and standardization samples (Miller-Heyl et al., 1998). Furthermore, the PCRI has demonstrated convergent validity, when compared to other measures of child-rearing practices and PSE (Miller-Heyl et al., 1998).

### *Disciplinary Practices*

This study divided disciplinary practices into two subcategories. First, harsh punishment (authoritarian) includes spanking (CP), threatening, and criticizing. Second, child-centered practices (authoritative) include using reasoning and time outs (MacPhee & Fritz, 1995). In this measure, parents reported how often they used each of 12 different disciplinary practices, rated from 1 (*Never*) to 4 (*Often*). These were summed into two composites: Harsh Punishment, including spanking, threatening, and criticizing, and Child-Centered Practices, including reasoning and time out.

Based on factor analyses and assessments of Cronbach’s alpha reliability, six items from the PCRI Limit Setting scale and six items from the Disciplinary Practices scale were combined

into a **Harsh Punishment** scale that has an adequate internal reliability,  $\alpha = .81$ . In addition, six items from the PCRI communication scale and three items from the **Child-Centered Practices** scale were combined into a Child-Centered Practices scale that also has an adequate internal reliability,  $\alpha = .73$ .

### *Attribution Vignettes*

Given this study's theoretical framework of self-efficacy and the influence of parent attributions on levels of parent self-efficacy (Berliner et al., 2019; Coleman & Karraker, 2004; Cutrona & Troutman, 1986; Schulz et al., 2018), parent attributions are specifically defined as the reasons a parent attributes for their child's behavior. These attributions are coded into two categories, child-blaming attributions and self-blaming attributions (MacPhee & Fritz, 1995; Mash & Johnston, 1983; Ribiczey et al., 2016).

Used to measure disciplinary practices and a moderating variable (parent attributions), researchers in DTBY developed six vignettes to assess four types of parental reasoning. These vignettes depicted different types of common problematic behaviors in preschoolers, such as violating rules and oppositional behavior (MacPhee & Fritz, 1995). Parents were then prompted to choose one of four causal attributions for each behavior to explain why the respondent, if they were in the same situation, would face difficulties when coping with their child's behavior: child blame, insufficient effort, task difficulty, and lack of ability (MacPhee & Fritz, 1995). Open-ended responses were coded into one of 21 child-rearing practices, which were weighted according to how effective and positive the strategy was long term, with higher scores representing greater parental reasoning skills and more positive child-rearing practices (MacPhee & Fritz, 1995). The open-ended measure was not used in this study because of limited evidence for its validity. Justification for using this measure stems from its good internal reliability

observed in previous research ( $\alpha = .84 - .88$ ), such as a study of abusive and distressed low-income Colorado parents (MacPhee & Fritz, 1995; MacPhee & Rattenborg, 1991). Furthermore, this measure proved valid in a study of middle-class couples transitioning into parenthood, with vignette attributions relating to actual child behaviors, disciplinary practices, and parent attributions (Sirignano & Lachman, 1985). In this study, I will be using the subscales pertaining to child-blaming attributions ( $\alpha = .89$ ) and self-blaming attributions ( $\alpha = .90$ ), which have demonstrated good validity.

#### *Behavior Checklist for Infants and Children (BCIC)*

For the purposes of this study, child behavior was defined to either be “problematic” or “difficult” by parents, using the Behavior Checklist for Infants and Children (BCIC) (MacPhee & Fritz, 1995). The BCIC provides descriptions of 42 child behaviors, 12 of which represent social competencies. Parents indicate how frequently each behavior occurs, and how problematic the behavior is; higher scores represent greater behavior problems (Miller-Heyl et al., 1998). Internal reliability for this measure was excellent ( $\alpha > .90$ ) throughout the DTBY program (MacPhee & Fritz, 1995). Additionally, this measure demonstrated convergent validity when compared to other measures of child behavior (MacPhee & Fritz, 1995).

#### **Procedure**

A longitudinal research design was used to evaluate the effects of DTBY across five cohorts. All participants gave informed consent before enrolling in the DTBY program. Additionally, all participants were given the option to drop out at any time during DTBY (MacPhee & Fritz, 1995). Participants completed questionnaires at the beginning of the program, and an immediate posttest after completion of the 12-week program for the intervention group only, and at yearly intervals following the completion of DTBY (MacPhee & Fritz, 1995). After

enrolling in DTBY, parents participated in 10 to 12 weeks of workshops based on the DTBY curriculum. These workshops primarily focused on providing parent education to increase effective child-rearing practices, parent self-efficacy, and parental coping, which was hypothesized to increase children's resilience and avoidance of later drug use.

This study design is well suited to examine the association between PSE and the use of disciplinary practices, given that changes in PSE can be tracked alongside changes in disciplinary practices over a prolonged period.

### **Plan of Analyses**

The first hypothesis of this study is that the predictor variable of parent self-efficacy (PSE) is associated with the outcome variables: parental use of (a) harsh punishment and coercive parenting strategies (authoritarian) and (b) child-centered discipline (authoritative). This association was tested with bivariate correlations cross-sectionally for both intervention groups at pretest, and separately for the intervention and control groups from pretest to the 1-year follow-up. In addition, a 2 (Group: intervention vs. control) X 2 (Time) repeated measures MANOVA was used to test for changes in the predictor and outcome variables.

Additionally, for children reported to have more problematic temperaments and behaviors, parents with lower PSE are hypothesized to have even greater use of harsh punishment, as opposed to parents with lower PSE who have children with fewer perceived problem behaviors. Furthermore, for parents reporting greater self-blaming and especially child-blaming attributions, PSE is hypothesized to be lower, with a greater use of CP and harsh punishment behaviors. The planned method of analysis for testing these hypotheses is through multiple regression. First, I used the combined groups and pretest data to examine bivariate correlations between the predictor, outcome, and moderating variables. Second, to test my model

at baseline, I conducted multiple regression analyses that predicted child-rearing practices from parent self-efficacy and (a) parent attributions and PSE X attributions to test for moderation, and (b) child behavior problems and PSE X child behavior problems to test for moderation. Then, to determine intervention effects and causal relations among variables, the longitudinal data were used to examine the moderation models that were tested with the pretest data described above. Partial coefficients (beta weights) and group differences in gain scores were compared using the pretest and the 1-year follow-up. Support for the hypotheses is obtained if intervention effects on parent self-efficacy, as well as attributions and child problem behavior, predict increased use of child-centered discipline and decreased use of harsh discipline.



## RESULTS

### **Preliminary Analyses**

#### *Fathers*

Due to insufficient statistical power, analyses for fathers alone were not included. The number of fathers who completed both the pretest (Time1) and the 1-year follow-up (Time3) ( $n = 34$ ) did not meet the required sample size to achieve 80% power (observed power = 21%). Thus, analyses were conducted using data for mothers exclusively.

#### *Missing Data*

Missing data were estimated using the multiple imputation strategy advised by Schafer and Graham (2002). The Markov chain Monte Carlo (MCMC) method was used to estimate missing data for normally distributed dependent variables. By using all other variables as predictors, the method takes a single variable and imputes missing data for that variable; repeating until the maximum number of iterations specified ( $N = 20$  in this case) is achieved.

#### *Covariates*

A multiple regression analysis was used to test if the ages of children and parents significantly predicted child-centered discipline (authoritative) and harsh punishment (authoritarian). The results of the regression indicated that child age was a significant predictor of child-centered discipline at Time1 ( $p < .001$ ), but not of harsh punishment. Mother's age was a significant predictor of harsh punishment at Time1 ( $p < .05$ ) but not of child-centered practices at Time1. Child and parent age were trimmed from the primary analyses for harsh punishment, given that they only accounted for 1.4% of the total variance in the model, and were made nonsignificant when accounting for all predictors. Child age was retained as a covariate for child-centered practices, given that it was responsible for 3.4% of the total variance ( $p < .001$ ).

## Primary Analyses

### *H1: PSE is Associated with Authoritarian and Authoritative Parenting*

To test the hypothesis that PSE is associated with the outcome variables (a) harsh punishment and coercive parenting strategies (authoritarian) and (b) child-centered discipline (authoritative), correlation analyses were first used. At Time1, amongst mothers in both groups, harsh punishment (authoritarian) and parent self-efficacy (PSE) were inversely correlated (Table 2), and PSE and child-centered (authoritative) discipline were positively correlated. The correlations in each group were similar in magnitude, suggesting that random assignment worked.

**Table 2.**

*Mothers' Mean (SD) Scores and Correlations Among Self-Efficacy and Child-Rearing Practices, by Intervention Group at Pretest*

DTBY Mothers					
Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2
1. Parent Self-Efficacy	384	3.36	.82	-	
2. Child-Centered	296	6.53	.71	.21**	-
3. Harsh Punishment	296	4.74	.82	-.47**	-.30**

\*\**p* < .01

Control Mothers					
Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2
1. Parent Self-Efficacy	216	3.50	.79	-	
2. Child-Centered	171	6.57	.70	.31**	-
3. Harsh Punishment	171	4.64	.92	-.61**	-.30**

\*\**p* < .01

At Time3, mothers in the intervention group who were higher in parent self-efficacy at the 1-year follow-up again were more likely to use child-centered practices and less likely to use harsh punishment (Table 3). This pattern also held for mothers in the control group at the 1-year follow-up with the exception that parent self-efficacy was not significantly related to child-

centered discipline. There was also consistency in the correlation matrices at Time1 (Table 2) and Time3 (Table 3) for the intervention group, with correlations lower at Time3 than at Time1 for parent self-efficacy in the control group. In the end, the correlations supported the hypotheses that PSE and child-rearing practices are related.

**Table 3.**

*Mothers' Mean (SD) Scores and Correlations Among Self-Efficacy and Child-Rearing Practices, by Intervention Group at the 1-Year Follow-Up*

DTBY Mothers					
Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2
1. Parent Self-Efficacy	276	3.69	.74	-	
2. Child-Centered	276	6.77	.56	.26**	-
3. Harsh Punishment	276	4.31	.78	-.44**	-.29**

\*\*  $p < .01$

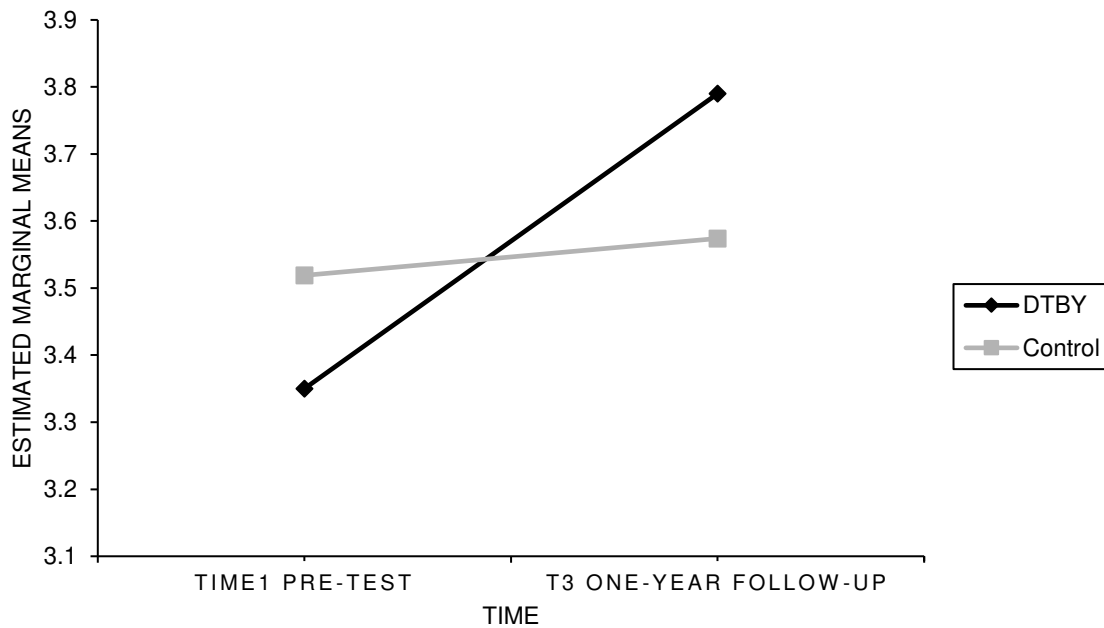
Control Mothers					
Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2
1. Parent Self-Efficacy	103	3.58	.80	-	
2. Child-Centered	99	6.53	.78	.06	-
3. Harsh Punishment	99	4.49	.76	-.30**	-.40**

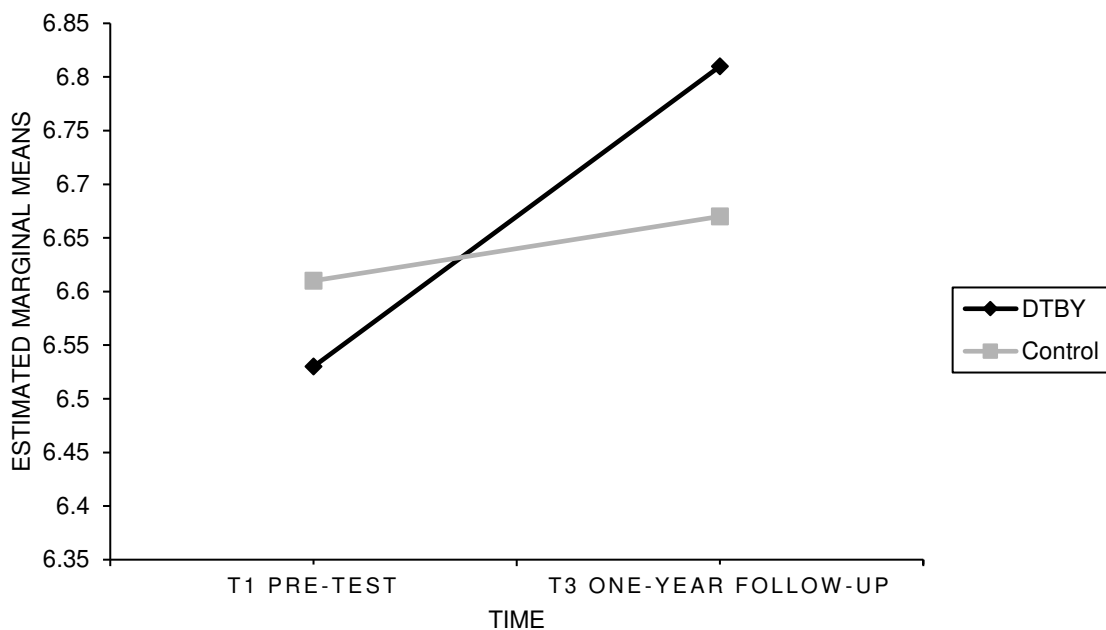
\*\*  $p < .01$

Next, a repeated measures MANOVA was performed to examine changes in the predictor and outcome variables between intervention groups from pretest to 1-year follow-up. The omnibus MANOVA test for Group X Time was significant,  $F(3,394) = 12.98, p < .001$ ; Wilk's  $\Lambda = 0.91$ , partial  $\eta^2 = .09$ . As shown in Figure 2, the group changes in PSE between pretest and the 1-year follow-up, using estimated marginal means, revealed a significantly greater increase over time in the DTBY mothers' self-efficacy,  $F(1,396) = 20.57, p < .001$ . Similarly, differential changes were observed for the two outcome variables, with DTBY mothers' increased use of child-centered practices being significantly greater than changes observed in the control group,  $F(1,396) = 10.43, p < .001$  (Figure 3). Furthermore, DTBY mothers' decreased use of harsh

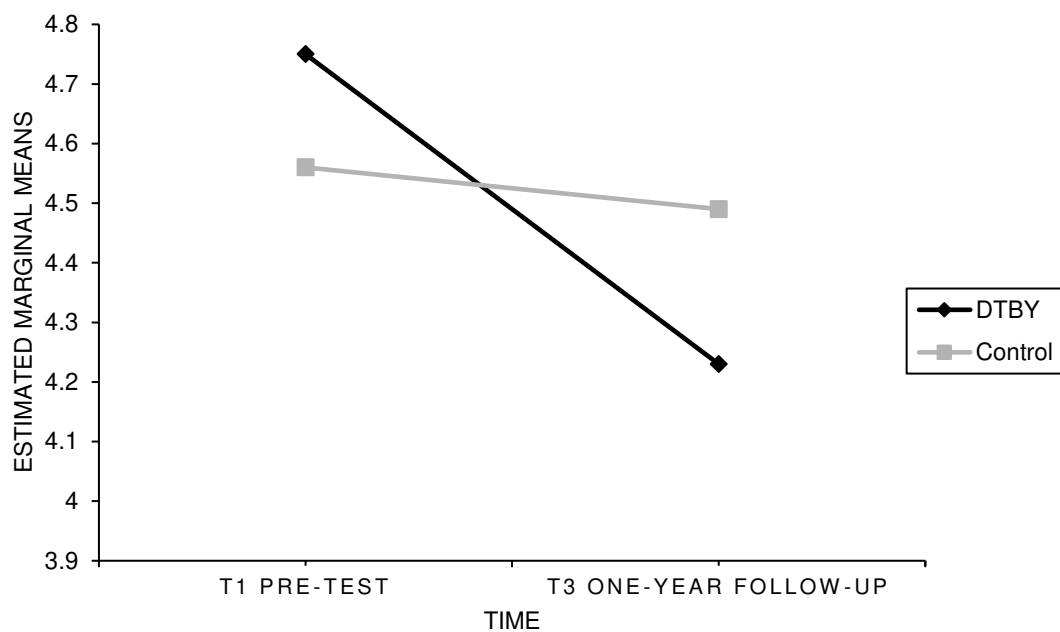
punishment over time was greater than what was observed in the control group,  $F(1,396) = 29.35, p < .001$  (Figure 4). Thus, the DTBY intervention had the intended effect of modifying both the putative mediating variable of the intervention (parent self-efficacy) and the outcome variables of authoritative versus authoritarian child-rearing practices.

**Figure 2:** *Intervention Group Differences in Change in Parent Self-Efficacy between Pretest and 1-Year Follow-up*





**Figure 3:** *Intervention Group Differences in Change in Child-Centered Discipline between Pretest and 1-Year Follow-up*



**Figure 4:** *Intervention Group Differences in Change in Harsh Punishment between Pretest and 1-Year Follow-up*

*H2 & H3: PSE's Relation to Child-Rearing Practices is Moderated by Parent Attributions and Child Behavior*

In the first test of my model in Figure 1, I examined whether PSE (the predictor) and the moderating variables significantly predicted the use of (a) harsh punishment and (b) child-centered discipline. Multiple regression analyses were computed using the combined groups at pretest. The results of the first regression were significant,  $F(8,437) = 55.19, p < .001$ , and indicated that eight predictors explained 49.9% of the variance in harsh punishment (Table 4). It was found that low PSE significantly predicted greater use of harsh punishment, as did child-blaming attributions, self-blaming attributions, and especially parent-rated child behavior problems. In order to test moderation, I computed interaction terms between parent self-efficacy and parent attributions as well as between PSE and child behavior problems, with all variables centered. However, the interaction terms involving parent attributions, child behavior problems, and child age were not significant moderators of the relation between PSE and harsh punishment. Moderation would have been supported if the interaction term(s) accounted for significant variance beyond that explained by the univariate effects of PSE, parent attributions, and child behavior problems. The addition of the interaction terms did not reduce the impact of main effects, or contribute meaningfully in accounting for additional variance in harsh punishment (50.3% vs 49.9%).

**Table 4.***Moderator Analysis of Predictors of Harsh Punishment, Combined DTBY and Control Groups at Pretest*

Effect	Beta	SE	<i>p</i>
Fixed effects			
Intercept	-.20	.06	.001
Child age	.07	.06	.276
Parent self-efficacy	-.53	.07	<.001
Self-blaming attributions	.17	.07	.01
Child-blaming attributions	.19	.07	.005
Child behavior problems	.79	.06	<.001
PSE X SB	.04	.06	.533
PSE X CB	-.07	.06	.220
PSE X Child behavior problems	-.06	.05	.273

*Note.* PSE X SB = Parent self-efficacy X Self-blaming attributions. PSE X CB Attributions = Parent self-efficacy X Child-blaming attributions. PSE X Child behavior problems = Parent self-efficacy X Child behavior problems.

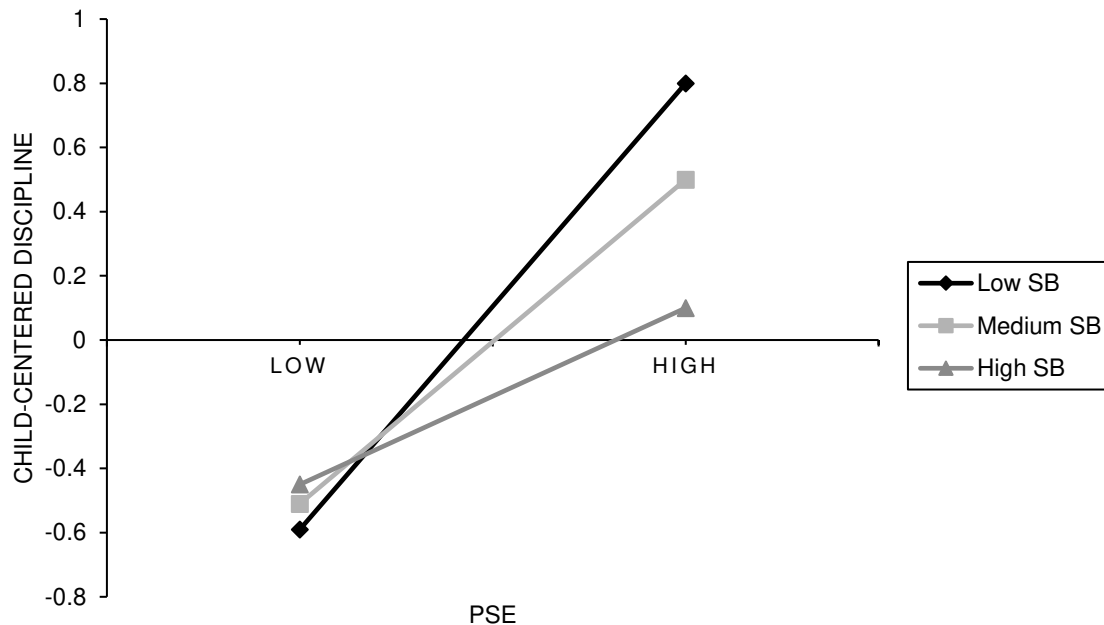
In the second analysis, the regression was significant,  $F(8,437) = 10.21$ ,  $p < .001$ , and the eight predictors explained 15.8% of the variance in child-centered practices at Time1. Mothers who had higher levels of parent self-efficacy were significantly more likely to use child-centered discipline (Table 5); parent-rated child behavior problems and child age were inversely related to child-centered discipline. There was also a significant moderation effect between self-blaming attributions and PSE: There were no differences in (low) child-centered discipline among mothers who were low in parent self-efficacy, regardless of their level of self-blaming attributions, but for mothers who were high in parent self-efficacy, they were most likely to use child-centered discipline if they also were low in self-blaming attributions (Figure 5). Child-blaming and self-blaming attributions alone were not significant predictors of child-centered discipline; neither were hypothesized moderators such as child-blaming attributions and child behavior problems.

**Table 5.**

*Moderator Analysis of Predictors of Child-Centered Discipline, Combined DTBY and Control Groups at Pretest*

Effect	Beta	SE	p
Fixed effects			
Intercept	-.03	.08	.679
Child age	.27	.07	<.001
Parent self-efficacy	.36	.08	<.001
Self-blaming attributions	-.11	.08	.171
Child-blaming attributions	-.10	.08	.246
Child behavior problems	-.19	.08	.013
PSE X SB	-.21	.08	.008
PSE X CB	.08	.07	.305
PSE X Child behavior problems	.12	.07	.074

*Note.* PSE X SB = Parent self-efficacy X Self-blaming attributions. PSE X CB Attributions = Parent self-efficacy X Child-blaming attributions. PSE X Child behavior problems= Parent self-efficacy X Child behavior problem.



**Figure 5:** *Self-Blaming Attributions Moderate the Relation between Parent Self-Efficacy and Child-Centered Discipline*

*Note.* SB = Self-blaming attributions.



#### *H4: PSE Mediates the Impact of DTBY on Child-Rearing Practices*

In order to test if DTBY leads to improvements in child-rearing practices in part by bolstering parent self-efficacy, multiple regressions were computed separately for the intervention and control groups, then the beta weights were compared in order to determine if changes in the predictors between Time1 and Time3 were more predictive in the DTBY group than in the control group. With all variables centered, four multiple regressions were computed, two each for the DTBY and control groups with (a) PSE at Time1 and change in PSE as the focal predictors, and (b) change in child-centered discipline as well as change in harsh punishment as the outcome variables.

A preliminary analysis was conducted in order to determine whether the intervention and control groups were similar at pretest in how PSE was related to child-rearing practices. If the regression equations were similar between groups at baseline but differed in pretest variables predicting child-rearing practices at Time3, this would suggest that the DTBY intervention's impact on PSE resulted in changes in child rearing. I used regressions to compare the two groups' beta weights for the relation between PSE and harsh punishment and found that PSE was a significant predictor at Time1 for DTBY (Table 6),  $R^2 = .458$ ,  $F(8,276) = 29.19$ ,  $p < .001$ , and the control group (Table 7),  $R^2 = .603$ ,  $F(8,152) = 28.80$ ,  $p < .001$ . The difference in beta weights between the two groups was nonsignificant using a test of overlap between confidence intervals (CIs) and error bars recommended by Cumming (2005). The equivalent comparison with child-centered discipline as the outcome variable showed that PSE was a significant predictor at Time1 for DTBY,  $R^2 = .167$ ,  $F(8,276) = 6.94$ ,  $p < .001$ , and for those in the control group,  $R^2 = .165$ ,  $F(8,152) = 3.76$ ,  $p < .001$ . Using the same method, the difference in beta weights between DTBY and the control group was nonsignificant.

**Table 6.***DTBY Regression Analyses of Predictors and Child-Rearing Practices at Pretest*

Harsh Punishment at Time1			
Effect	Beta	SE	p
Fixed effects			
Intercept	-.24	.09	.005
Child age	.06	.08	.455
Parent self-efficacy	-.45	.08	<.001
Self-blaming attributions	.20	.09	.027
Child-blaming attributions	.11	.09	.212
Child behavior problems	.82	.09	<.001
PSE X SB	.04	.08	.664
PSE X CB	-.05	.08	.540
PSE X Child behavior problems	-.11	.07	.116

*Note.* PSE X SB = Parent self-efficacy X Self-blaming attributions. PSE X CB Attributions = Parent self-efficacy X Child-blaming attributions. PSE X Child behavior problems = Parent self-efficacy X Child behavior problems.

Child-Centered Discipline at Time1			
Effect	Beta	SE	p
Fixed effects			
Intercept	-.01	.10	.897
Child age	.30	.09	<.001
Parent self-efficacy	.27	.10	.005
Self-blaming attributions	-.16	.10	.112
Child-blaming attributions	-.14	.11	.185
Child behavior problems	-.26	.10	.009
PSE X SB	-.17	.09	.072
PSE X CB	.07	.09	.447
PSE X Child behavior problems	.10	.08	.245

*Note.* PSE X SB = Parent self-efficacy X Self-blaming attributions. PSE X CB Attributions = Parent self-efficacy X Child-blaming attributions. PSE X Child behavior problems = Parent self-efficacy X Child behavior problems.

**Table 7.***Control Regression Analyses of Predictors and Child-Rearing Practices at Pretest*

Harsh Punishment at Time1			
Effect	Beta	SE	p
Fixed effects			
Intercept	-.16	.10	.093
Child age	.07	.09	.450
Parent self-efficacy	-.71	.10	<.001
Self-blaming attributions	.14	.10	.171
Child-blaming attributions	.34	.10	<.001
Child behavior problems	.70	.10	<.001
PSE X SB	-.05	.11	.686
PSE X CB	-.12	.10	.221
PSE X Child behavior problems	.05	.09	.574

*Note.* PSE X SB = Parent self-efficacy X Self-blaming attributions. PSE X CB Attributions = Parent self-efficacy X Child-blaming attributions. PSE X Child behavior problems = Parent self-efficacy X Child behavior problems.

Child-Centered Discipline at Time1			
Effect	Beta	SE	p
Fixed effects			
Intercept	-.08	.13	.539
Child age	.23	.12	.06
Parent self-efficacy	.53	.14	<.001
Self-blaming attributions	-.04	.14	.772
Child-blaming attributions	-.03	.14	.838
Child behavior problems	-.10	.13	.463
PSE X SB	-.25	.15	.099
PSE X CB	.09	.14	.530
PSE X Child behavior problems	.16	.12	.184

*Note.* PSE X SB = Parent self-efficacy X Self-blaming attributions. PSE X CB Attributions = Parent self-efficacy X Child-blaming attributions. PSE X Child behavior problems = Parent self-efficacy X Child behavior problems.

To test the existence of treatment effects and if PSE mediated the relation between DTBY and child-rearing practices, multiple regressions were then used to examine group differences in primary predictor and outcome variables. The regression for harsh punishment at Time3 was significant for the DTBY group,  $R^2 = .375$ ,  $F(6,180) = 17.98$ ,  $p < .001$ , predicted by changes in PSE between Time1 and Time3, PSE at Time1, and harsh punishment at Time1 (Table 8). In the control group, the regression was also significant,  $R^2 = .626$ ,  $F(6,56) = 15.62$ ,  $p < .001$ , with harsh punishment at Time3 being predicted by harsh punishment and PSE at Time1 (Table 9).

Using the same testing method as stated previously, the difference in beta weights for PSE between the two groups was statistically significant ( $p < .05$ ), supporting the hypothesis that PSE mediated child-rearing practices based on treatment, such that increases in PSE within DTBY predicted greater decreases in harsh punishment at Time3. In contrast, for the control group, variance in harsh punishment at Time3 largely was a product of cross-time stability.

The regression for child-centered discipline at Time3 was significant for DTBY,  $R^2 = .370$ ,  $F(6,180) = 17.61$ ,  $p < .001$ , with child-centered discipline predicted by changes in PSE, child-centered discipline at T1, PSE at Time1, and child behavior problems. For the control group, the regression for child-centered discipline at Time3 was significant,  $R^2 = .295$ ,  $F(6,56) = 3.90$ ,  $p < .01$ , and predicted exclusively by child-discipline at Time1; i.e., cross-time stability.

The difference in group beta weights was statistically significant ( $p < .05$ ), supporting the hypothesis that PSE mediated child-rearing practices based on treatment, such that increases in PSE within DTBY predicted greater increases in child-centered discipline at Time3.

**Table 8.**

*DTBY Regression Analyses of Predictors and Child-Rearing Practices at 1-Year Follow-Up*

Harsh Punishment at Time3			
Effect	Beta	SE	<i>p</i>
Fixed effects			
Intercept	.35	.13	.009
PSE change	-1.05	.19	<.001
Harsh Punishment T1	.46	.09	<.001
Parent self-efficacy T1	-.41	.14	.003
Self-blaming attributions T1	-.04	.12	.728
Child-blaming attributions T1	.22	.12	.071
Child behavior problems T1	.19	.14	.184

*Note.* PSE change = Parent self-efficacy Time3 – Parent self-efficacy Time1. T1 = Time1.

**Table 8 (continued).**

Child-Centered Discipline at Time3			
Effect	Beta	SE	p
Fixed effects			
Intercept	-.23	.13	.079
PSE change	.60	.18	.001
Child-centered T1	.58	.07	<.001
Parent self-efficacy T1	.52	.13	<.001
Self-blaming attributions T1	-.09	.12	.512
Child-blaming attributions T1	-.01	.12	.961
Child behavior problems T1	.47	.12	<.001

*Note.* PSE change = Parent self-efficacy Time3 – Parent self-efficacy Time1. T1 = Time1.

**Table 9.**

*Control Regression Analyses of Predictors and Child-Rearing Practices at 1-Year Follow-Up*

Harsh Punishment at Time3			
Effect	Beta	SE	p
Fixed effects			
Intercept	.02	.14	.891
PSE change	-.29	.22	.193
Harsh Punishment T1	.70	.11	<.001
Parent self-efficacy T1	-.34	.17	.047
Self-blaming attributions T1	.07	.14	.646
Child-blaming attributions T1	.17	.17	.327
Child behavior problems T1	-.13	.17	.434

*Note.* PSE change = Parent self-efficacy Time3 – Parent self-efficacy Time1. T1 = Time1.

Child-Centered Discipline at Time3			
Effect	Beta	SE	p
Fixed effects			
Intercept	.30	.17	.079
PSE change	-.09	.26	.717
Child-centered T1	.43	.10	<.001
Parent self-efficacy T1	-.10	.20	.607
Self-blaming attributions T1	-.07	.17	.999
Child-blaming attributions T1	-.06	.20	.633
Child behavior problems T1	-.28	.18	.124

*Note.* PSE change = Parent self-efficacy Time3 – Parent self-efficacy Time1. T1 = Time1.

## DISCUSSION

In support of the primary hypotheses, the results of this study showed that parent self-efficacy (PSE) was associated with mothers' use of harsh punishment and coercive parenting strategies (authoritarian) and child-centered discipline (authoritative). PSE was inversely related to harsh punishment and higher levels of PSE were related to the use of more child-centered discipline. Compared to the relative stability across time seen in the control group, changes within the treatment group demonstrated that the DARE to be You (DTBY) family-based intervention led to sustained improvements in effective child-rearing strategies by bolstering self-efficacy. Contrary to secondary hypotheses, child blaming attributions and behavior problems did not moderate the relation between PSE and harsh punishment but were significant main effects. Self-blaming attributions were a significant predictor of harsh punishment and did moderate the relation between PSE and the use of child-centered discipline, such that the association between PSE and child-centered discipline was much weaker for mothers who engaged in self-blaming compared to those who did not.

These findings support the theory that more authoritative parents are higher in parent self-efficacy, consonant with previous research showing that PSE and child-rearing practices are related (Coleman & Karraker, 1998), and that low PSE is associated with ineffective parenting behaviors (Sanders & Woolley, 2005; Schulz et al., 2018). The findings of several main effects support both self-efficacy theory and coercion theory. Bandura's (1977a; 1986) foundations of self-efficacy were essential in predicting child-rearing practices and were a significant means to improve them. Furthermore, the moderation of PSE through self-blaming aligns with previous research (Mash & Johnston, 1983) and Bandura's (1982) self-efficacy theory. Specifically, when one's perceived level of performance is minimized, when they are not successful in executing a

behavior, self-efficacy is decreased (Bandura, 1982). Despite their persistence in using child-centered behaviors, mothers who consistently engage in self-blaming may find it more difficult to attribute their success to their own competence (i.e., self-efficacy), and may be more easily impacted by repeated failure (e.g., managing problematic child behaviors), especially if being a successful parent is important to them (Harter, 2015). Supporting previous research (Sanders & Woolley, 2005; Schulz et al., 2018), harsh punishment and coercive parenting practices were much easier to predict, as would be expected based on Patterson's (2002) theory and research on coercive cycles. Specifically, sustained ineffective parenting practices could be predicted by greater child-behavior problems, negative parent attributions (child-blaming and self-blaming), and the resultant low parent self-efficacy.

The strong predictability of coercive parenting practices, especially among mothers, directly supports Patterson's (1980) research on coercive cycles showing that mothers are more involved in coercive interchanges between children who have greater problematic behaviors (Patterson, 1980). Furthermore, Patterson's (1980) claim and research findings that mothers are the unacknowledged victims of coercive cycles is supported, such that the accompanied negative parent attributions and low parent self-efficacy align with the decreased self-esteem and increased depression that mothers experience in prolonged coercive cycles. Patterson (2002) also suggested that parenting behaviors reflect contextual factors (e.g., depression, divorce, stress), and that the impact of contextual factors on developmental outcomes is mediated by parent-child exchanges. Considering the sample characteristics of the current study (i.e., medium/high risk families), the presence of coercive parenting practices could be attributed to, in part, the prevalence of contextual factors. By increasing PSE and effective child-rearing practices vs. ineffective parenting behaviors (i.e., parent-child exchanges), the DTBY intervention sought to

prevent negative developmental outcomes by mediating the impact of contextual factors on child development, especially those associated with coercive parenting behaviors (Patterson, 2002).

These findings are generalizable given that the sample is diverse and derived from a longitudinal randomized controlled trial, which permits causal inferences about the role of parent self-efficacy (PSE) and the moderating variables of child temperament and behavior, along with parent attributions. Second, the measures being used within this study are theory driven and align well with the conceptual definitions of all variables: PSE, social-cognitive processes such as attributions, and child-rearing practices. Last, the diverse and large sample size provides greater generalizability and a high level of statistical power, allowing for the higher likelihood of detecting group differences between child-rearing practices (authoritative and authoritarian) and parent self-efficacy.

However, there are a few possible limitations to the generalizability of this study. First, the data being used originates from research conducted in the 1990's. This is important to consider, especially because the social and cultural changes within the United States cannot be accounted for over the past 25 years. Additionally, recent research and cultural shifts have led to CP and other methods of harsh punishment becoming less acceptable (Gershoff & Grogan-Kaylor, 2016). Given this, any conclusions drawn from this study may be constricted to a time and place, which may not align well with present social norms and expectations, thus decreasing any current generalizability of findings. However, recent studies have discovered that a large minority of parents (35%) still endorse spanking, regardless of shifts in cultural acceptance (LaMotte, 2020). Second, all the data were derived from self-reports, which can lead to the misinterpretation of cross-sectional and treatment effects (Bauhoff, 2011; Bound et al., 2001).



Last, because of the exclusion of fathers due to the small sample size, the results of this study are only generalizable to mothers.

To further understand the relation between PSE and child-rearing practices, researchers should further investigate the reinforcement cycles underpinning the sustained use of a particular parenting behavior. Self-efficacy has been related to parenting behaviors through the dynamic interactions between cognitive processing, behavioral pathways, motivation, and affect (Bandura, 1977a; 1986; Coleman & Karraker, 1998). The present study focused on the cognitive and behavioral processes of self-efficacy but not specifically the affective and motivational (persistence) aspects and their impact on child-rearing practices. It can be theorized that parents benefit from engaging in specific behaviors and would persist in repeating them if they were rewarding. The hedonic contingency model (HCM), like B.F. Skinner's (1953) behaviorist theory of learning, suggests that individuals base their behaviors on the affective (emotional) consequences (i.e., rewards) of their choices, and subsequently develop persistent tendencies to seek experiences that promote their desired affect (Handley et al., 2004; Wegener & Petty, 1994). Such an affective parenting cycle would suggest that continuous engagement in a parenting behavior would be sustained by the expected attainment of affective rewards, with self-efficacy directly increased by the successful execution of those behaviors if the attainment of those rewards is achieved (Bandura, 1982).

Researchers should also consider the potential influence of family scripts. Family scripts are the internal working models that individuals replicate, correct, or improvise based on their upbringing (Byng-hall, 1986). Parents may replicate the methods of discipline they experienced as children, engage in the opposite behaviors because of negative experiences and counter imitation, or develop new improvised child-rearing strategies based on necessity (Byng-hall,

1986; 1998). In addition to patterns of behavior, family scripts influence the development of self-concept, such as what it means to be a parent and what parents do. Such internal working models complement the social cognitive processes proposed by Bandura (1982) and explain the use of specific parenting behaviors. Given that self-efficacy is dependent on performance attainments and the perceived ability to facilitate an outcome, such self-appraisals may be highly influenced by whether one's experiences align with their family script of parenting.

The results of this study also have strong implications for intervention and prevention work. Harsh punishment increases the risk of child abuse and is associated with several detrimental outcomes for children (Baumrind, 1966; Brenner & Fox, 1999; Gershoff & Grogan-Kaylor, 2016; Robinson et al., 1995), and this study showed that harsh punishment, especially because of coercive cycles, is significantly more predictable—in terms of both parental cognitions and over time—and can be minimized through strengthening self-efficacy. Given this, to best breakdown coercive and harsh parenting practices, those working with families to prevent negative developmental outcomes should target both self-efficacy and effective child-rearing practices in tandem. Additionally, because maternal cognitions (i.e., attributions) were significant predictors of harsh punishment due to their impact on self-efficacy, promoting the empowerment of parents and positively reframing parenting experiences is essential. Supporting the positive self-appraisals of parents will aid in the development of long-term self-efficacy, in turn, promoting persistence in using effective parenting practices.

## **Conclusion**

The association between parent self-efficacy (PSE) and the use of disciplinary practices is a very under researched topic in need of continuous investigation. This study brings to light the drivers of harsh punishment and authoritarian practices, and further draws attention to the

predictable cycles that perpetuate counterproductive parenting behaviors. To prevent child abuse at large, empowering the self-efficacy of parents is one necessity.

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