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Do Discipline Style and Parenting Self-Efficacy Interact to Predict Observed Child Behavior? Outcomes from a Representative Sample of Mothers with Young Children

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DO DISCIPLINE STYLE AND PARENTING SELF-EFFICACY INTERACT TO
PREDICT OBSERVED CHILD BEHAVIOR? OUTCOMES FROM A REPRESENTATIVE
SAMPLE OF MOTHERS WITH YOUNG CHILDREN

by

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Abstract

Both parenting style and parents' sense of their own parenting self-efficacy (PSE) have been found to predict child behavior outcomes in young children. Parents who engage in lax or overreactive parenting practices or who lack confidence in their parenting abilities are more likely to have children who display disruptive and noncompliant behavior. Until now, very little research has examined whether an interaction exists between these two constructs in predicting child behavior outcomes. The current study looked to fill this gap and assess whether a significant moderation relationship exists between parents' parenting style and PSE in predicting observed child behavior. A representative sample of (N=268) mother-child dyads was assessed using self-report measures of parenting style and PSE and coded data on observed child behavior from a lab-based interaction task. Results of the initial hierarchical multiple regression analyses revealed no significant moderation or main effects for the predictors of interest in predicting observed child behavior. Subsequent analyses using parent report of child behavior as the criterion, however, revealed a significant moderation effect in which level of PSE was more predictive of child behavior when parents engaged lax parenting than when they were not lax. No significant interaction was found for overreactive parenting. Implications for future research and intervention are discussed.

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Chapter 1. Introduction

Early childhood behavior concerns such as aggression and defiance have been found to predict more serious conduct problems later in development including involvement with antisocial peers (Dishion, Patterson, Stoolmiller & Skinner, 1991), substance abuse (Dishion, Reid, & Patterson, 1988), school dropout (Campbell, Shaw, & Gilliom, 2000), and criminality (Loeber, 1982). While behavior problems are attributed to multiple levels of influence within the ecological system (Bronfenbrenner, 1992), parenting practices are understood to play a large role in contributing to, reinforcing, or mitigating these issues, and have been shown to be malleable targets of parent training interventions (Darling, 1999; Loeber & Hay, 1997; Morawska & Sanders, 2007; Patterson, 1982).

For young children (ages 3-6), parenting plays a particularly significant role in contributing to the development of behavior patterns. Due to the rapid growth and development that occurs in the first three years of life, by the time children turn three, they have a myriad of newfound physical and cognitive abilities and can experience more complex emotions than they were capable of as infants (Capsi, Roberts & Shiner, 2005; Weaver, Shaw, Dishion & Wilson, 2008). It is parents' role in these early years to help their children learn to manage these new skills and regulate these new emotions appropriately, before they enter primary school and shift from spending the majority of

their time interacting with their insular families to navigating interactions with peers and other adults outside their homes.

Two important constructs from the parenting literature that contribute to children's development during these formative years are parent's discipline style and parents' sense of their own parenting self-efficacy (PSE). Each of these factors has been shown to significantly correlate with child behavior patterns, however, until now, little research has looked to determine if an interaction exists among these constructs. The purpose of the current study is to determine the extent to which parents' PSE moderates the relationship between parenting style and observed child negative behavior. If found to play a moderating role, PSE may represent an important target for parent-training intervention programs designed to help parents effectively manage children's misbehavior.

Parenting Style

Parenting style refers to a consistent pattern of behaviors that characterize how parents interact with their children, and includes both the content of their interactions as well as tone of voice and accompanying gestures (Darling & Steinberg, 1993). As with personality or temperament, parenting practices have been shown to fall into general and stable categories that transcend environmental or situational variation and are generally consistent across children's development, unless subjected to intervention (Darling, 1999; O'leary, Smith Slep, & Reid, 1999). Two dimensions on which parenting style is often categorized are level of warmth and level of demandingness (Baumrind, 1991; Darling & Steinberg, 1993). The current study focuses on the latter, looking at child behavioral

consequences for families that exhibit both overly high (overreactive) and exceedingly low (lax) levels of demandingness.

Studies have shown that parents who rate their toddler's externalizing behaviors as most problematic are also more likely to report responding with overreactive or lax discipline (Arnold et al., 1993; Del Vecchio & O'Leary, 2006). These results have been corroborated by observational studies of parents interacting with preschoolers which have demonstrated that children of mothers who exhibit either overreactive or lax parenting have children with the highest rates of misbehavior (Arnold, O'Leary, Wolff, & Acker, 1993; Del Vecchio & O'Leary, 2006). In a prospective study of child aggressive behavior, Del Vecchio and O'Leary (2006) observed 54 mother-toddler dyads in a 30 minute interaction task and found that while all toddlers misbehaved to some degree, what differentiated those children who eventually escalated to the point of aggression from those who did not, was the mothers' tendencies towards overreactive or lax responding. Theoretical explanations for the connections between overreactive and lax parenting and subsequent child behavior problems are explored below.

Laxness. Low levels of demandingness characteristic of a lax parenting style have been linked to increased externalizing behavior problems. Lax parents provide little structure, inconsistently enforce rules, and submissively give in to children's protests (Arnold et al., 1993). The most basic theoretical explanation for the connection between lax parenting and subsequent child behavior concerns comes from learning theory and the accidental rewarding of misbehavior. When parents give in to children's protests or demands, children learn that misbehavior gets them what they want, increasing the likelihood the behaviors will happen again (Arnold et al., 1993; Patterson, 1982; Rhoades

& O’Leary, 2007). If parents initially resist children’s demands but give in when children escalate their whining or tantrum, children learn that in order to get their way, they need to behave more poorly, and thus these behaviors increase. Additionally, research by Schaffer, Clark and Jeglic (2009) and Guarjado et al. (2009) demonstrated that lax parenting in which parents allowed children to misbehave despite the behavior’s negative effect on others, precluded children’s development of adequate emotional and cognitive empathy and correlated with a reduced capacity for theory of mind, both of which are associated with antisocial behavior.

Overreactivity. Consistent with social learning theory, children who experience overly harsh and negative discipline learn to model similar behavioral patterns in their own interactions with the world (Bandura, 1977; Loeber & Hay, 1997; Pfiffner, McBurnett, Rathouz, & Judice, 2005; Wootton, Frick, Shelton, & Silverthorn, 1997). Additional theoretic support comes from control theory which posits that harsh discipline interferes with children’s development of an internal sense of control. When their actions are managed externally by parental negative response, children do not learn to control their own behavior (Guajardo, Snyder, & Peterson, 2009; Masten & Coatsworth, 1998; Schaffer, 1996). Parents who use harsh discipline strategies such as yelling or spanking, may be immediately reinforced by the aversive behavior stopping, however, they have not prevented the behavior from occurring again (Hastings & Brown, 2002). Overreactive parenting may also interfere with parent-child bonding and attachment processes that are necessary for the transmission of social and empathetic values to children, thus increasing their likelihood for antisocial behavior (Bowlby, 1982; Patterson, DeBaryshe, & Ramsey, 1989).

Longitudinal datasets looking at large, representative samples of children such as the National Longitudinal Survey of Youth and the Canadian National Longitudinal Survey of Children and Youth have shown that maternal overreactivity when children are very young predicted physical aggression in early and middle childhood (Benzies, Keown, & Magill-Evans, 2009) with few differences found after accounting for demographic characteristics such as socioeconomic level or race (Grogan-Kaylor, 2005; Querido, Warner, & Eyberg, 2002; Straus, Sugarman, & Giles-Sims, 1997).

Considerable research has shown that parenting styles remain stable throughout children's development unless subjected to intervention. O'leary et al. (1999) found that the level of overreactive parenting reported by mothers when their children were between 18 and 36 months of age remained consistent when reassessed two and a half years later. Similarly, Pettit and Bates (1989) found that parents' tendencies to exert negative control over their children's behavior was consistent between the ages of six months and four years.

Parenting Self-Efficacy

Another parenting factor that has the potential to significantly affect child behavior is parents' sense of their own parenting self-efficacy (PSE). As the cognitive revolution has taken over the field of psychology researchers have recognized that human behavior is mediated not just by the traditional reward and punishment paradigms heralded by the behaviorists, but also by cognitive processes (Teti, O'Connell & Reiner, 1996). The development of higher forms of executive functioning has allowed us to represent, store and retrieve information regarding our behaviors and their outcomes. Through an accumulation of memories of social interactions and action-response

contingencies, we learn not only what behaviors lead to what outcomes, but also what behaviors we are and are not personally capable of successfully performing. Albert Bandura termed this cognitive concept “self-efficacy” and explained that “individuals can believe that a particular course of action will produce certain outcomes, but if they entertain serious doubts about whether they can perform the necessary activities, such information does not influence their behavior” (Bandura, 1977, p. 193).

As a consequence of this cognitive revolution, PSE, has become a popular topic of parenting research (Coleman & Karraker, 1998; Coleman & Karraker, 2003; Cutrona & Troutman, 1998; Jones & Prinz, 2009; Montigny & Lacharité, 2005; Teti & Gelfand, 1991). PSE is defined as “parents’ self-referent estimations of competence in the parental role” (Coleman & Karakker, 2003, p.128). Parents who are high in PSE are more likely to believe that they have the ability to influence the behavior and development of their children and that they will be able to handle parenting challenges as they arise, while parents low in PSE are more likely appraise difficult child behavior as threatening and assume less influence over the situation.

Lack of parental confidence has been found to predict aggressive behavior in children (Martin, Linfoot, & Stevenson), while high levels of parental confidence may have positive effects on child behavior (Coleman & Karraker, 2003; Coleman & Karraker, 1998). Theoretical explanations for the connection between parents’ levels of PSE and child behavior comes from social-learning theory which posits that parents with high PSE model confidence and positive affect for their children (Eccles, Wigfield, Harold, & Blumenfeld, 1993). Research has found that children of parents with high PSE show higher levels of enthusiasm, compliance and affection (Coleman & Karraker,

2003), increased self-regulation and sense of self-worth (Murry and Brody (1999) and increased self-efficacy, themselves (Ardelt & Eccles, 2001). According to self-efficacy theory, individuals are less likely to engage in activities that they do not feel they can perform to the extent necessary to achieve their desired results (Cutrona & Troutman, 1986; Saloman, 2009; Shumow & Lomax, 2002). Thus, while parents may be aware of what appropriate parenting actions may be, only those who anticipate being successful will actually attempt to carry these actions out (Bugental, Blue, & Cruzcosa, 1989; Saloman, 2009; Shumow & Lomax, 2002). Parents with high PSE respond more consistently and sensitively to their children, engage in higher quality parent-child interactions characterized by warmth and support, and persevere through challenges (Coleman & Karraker, 2003; Coleman & Karraker, 1998). Parents with low PSE, on the other hand, are more likely to use coercive and harsh parenting practices, inconsistently enforce rules, display inferior problem-solving skills, and have poorer attachment to their children (Coleman & Karraker, 1998).

Intervention research that has looked at changes in PSE has shown that increases in PSE predict decreased child behavior problems. Sofronoff and Farbotko (2002) found that parents who participated in parent management training reported increased PSE as well as decreased child behavior problems. In a randomized controlled prevention study testing an infotainment television series for families of two to eight year-old children, Sanders, Montgomery, and Brechman-Toussaint (2000) found that compared to control families, intervention families reported increased PSE and decreased child behavior problems, but did not report significant changes in their parenting styles, suggesting that

this relationship may not always be mediated by parenting behavior and that changes in PSE alone are sufficient to influence child behavior.

Historically, PSE has been found to play multiple roles in regard to parent and child adjustment. Most commonly, PSE has been conceptualized as a mediator, or explanatory factor, accounting for the relationship between various psychosocial variables and parenting behavior, such as child temperament, socioeconomic status, marital status and depression. In a study by Teti and Galfand (1991), each of these factors was no longer related to observed parenting competence in a mother-infant interaction task once self-efficacy was controlled for, suggesting that these factors do not impair parental functioning directly but do so when they undermine parents' sense of self-efficacy in caring for their children. Other studies have found that PSE mediates the role between infant temperament and mothers' post-partum depression (Curtona & Troutman, 1986), between mothers' prior experience with other people's children and their satisfaction in the parenting role (Coleman & Karakker, 2000) and between household income and child behavior (Morawska & Sanders, 2007).

For the current study, however, PSE is instead conceptualized as a moderator of the relationship between parenting style and child behavior. In describing the relationship between parenting discipline style and subsequent child behavior problems, PSE does not conceptually lend itself to playing a mediator role. Parenting style does not directly cause PSE which, in turn, does not directly cause child behavior. Instead, the current study takes the approach that mothers and fathers bring to their parenting roles tendencies towards specific styles of parenting, as well as latent amounts of PSE. Throughout the literature, it is made clear that PSE is a multiply determined construct (Sevigny & Loutzenhiser,

20010). According to Bandura, an individual's sense of their own self-efficacy in any domain results from three factors in combination; 1) their individual accomplishment history in that domain, 2) their observations of others engaging in relevant activities, and 3) verbal persuasion they receive from others regarding their ability to perform the given task. Based on these factors, individuals bring to any endeavor a conceptualization of how likely or not it is that they will be successful.

The current analysis looks to determine whether children's behavior is affected differently based on the combination of parents' discipline styles and their level of PSE that they bring to the parenting role. The study hypothesizes that PSE may modify the relationship between parent discipline style and child behavior (see Figure 1.1). For example, parents with low PSE may have children who show more negative behaviors than children of parents with high PSE despite both parents displaying the same degree of overreactivity or laxness if the parents with high PSE are modeling perseverance through challenges and optimism for success. Alternatively, parents with high PSE who demonstrate high levels of overreactivity or laxness may have children who show more behavior problems than those whose parents are just as overreactive or lax but show low levels of PSE if parents are naively confident that their parenting is not the cause of their child's problems (Conrad et al., 1992; Hess, Teti & Hussey-Gardner, 2004).

A small body of previous research supports the potential moderating role for PSE. In a 1992 study by Conrad, Gross, Fogg and Ruchala researchers found that maternal confidence in the parenting role interacted with maternal knowledge of infant development to predict the quality of mother-toddler interactions. Fifty mothers of children 12-36 months were asked to report on their parenting confidence as well as

complete a questionnaire assessing their knowledge of infant development. Each mother-child dyad then completed a videotaped structured interaction. Results revealed a significant moderation effect in which maternal confidence and maternal knowledge combined to predict the quality of the mother-toddler interactions such that among less confident mothers, knowledge of development made no significant difference in interaction quality, but among confident mothers, increased developmental knowledge predicted more positive interactions than those who were confident in their parenting but were less knowledgeable (Conrad et al., 1992).

To the best of our knowledge, the current study is the first to examine PSE as a potential moderator of the relationship between parental discipline style and child behavior problems. Based on the research described above, it is reasonable to expect significant predictive main effects for both parenting style and PSE in predicting child negative behavior. The second, and principal question for this study is whether or not an interaction exists between these constructs such that baseline level of PSE moderates the relationship between baseline parenting style and observed negative child behavior at follow-up. This question will be answered using data from a representative sample of parents with young children.

Hypotheses

We hypothesize that any of four moderating relationships may be found from these analyses:

- 1) PSE moderates the effect of lax parenting on child behavior such that parents who are lax but report high levels of PSE will have children who are better behaved than those who are lax but report low levels of PSE.

- 2) PSE moderates the effect of overreactive parenting on child behavior such that parents who are overreactive and report high levels of PSE will have children who are better behaved than those who are overreactive but report low levels of PSE.

If PSE is found to moderate the relationship between parenting discipline style and child behavior such that when parents are lax or overreactive, higher levels of PSE are associated with improved child behavior, the findings would suggest that interventions designed to improve parenting may benefit from focusing not just on teaching parents new skills, but also on increasing their PSE.

- 3) Alternatively, PSE may moderate the effect of high levels of laxness on child negative behavior such that parents who engage in lax parenting but report high levels of PSE will have children who are more poorly behaved than those who are lax but report low PSE.
- 4) Similarly, PSE may moderate the effect of overreactive parenting on child negative behavior such that parents who engage in overreactive parenting but report high levels of PSE will have children who are more poorly behaved than those who are overreactive but report low PSE.

If it is found that parents who engage in lax or overreactive parenting but have high PSE have children with higher levels of misbehavior than those who are lax or overreactive with low PSE, then these parents might be described as “naively confident” (Condrad et al., 1992; Hess et al., 2004) and may require specialized interventions that can sensitively challenge their current discipline practices.

A fifth possibility is that no moderating relationship will be found for PSE between parental discipline style and child misbehavior. If no moderating relationship is found, post-hoc investigations will be performed to determine if there are alternative explanations for this finding within the data set. Additionally, the potential for future research to more thoroughly characterize the nature and contribution of PSE and how it should best be studied in the field will be explored.

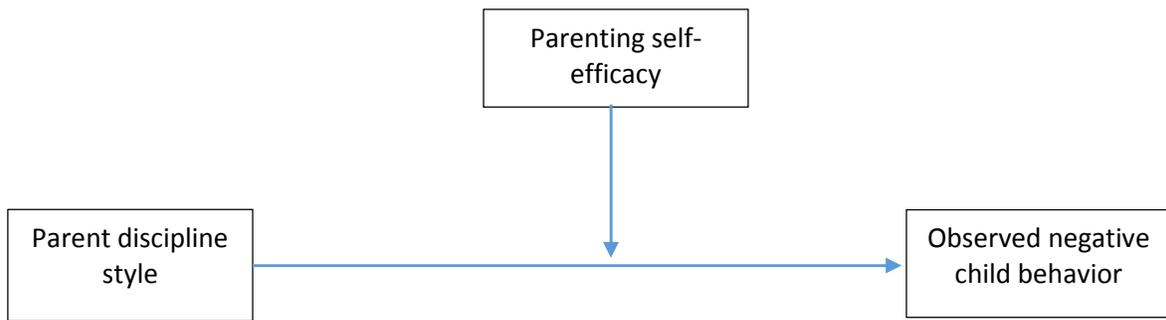


Figure 1.1 *Conceptual model of moderation relationship between parenting style, PSE and child behavior.*

Chapter 2. Method

Data for this study were originally collected as part of a randomized controlled trial assessing the impact of a media-based universal parenting intervention on parent and child behavioral outcomes. Because the current study uses data collected over time, only families who did not receive the active intervention condition are included in the analyses.

Given the universal nature of the intervention, the goal was to recruit a broad sample of participants from the general population that was representative of the racial and ethnic diversity of the midsize Southeastern city where the study took place. Efforts were made to recruit families with a range of family sizes, racial and ethnic backgrounds, and socioeconomic statuses. Flyers posted in preschools, daycare centers, laundromats, supermarkets and shopping malls advertised for parents interested in participating in a study on educational and entertaining videos relevant to families with young children. In order to overcome participation discrepancies between lower and middle-income families, recruitment techniques oversampled underserved families by concentrating flyers in low-SES neighborhoods.

Eligibility criteria required families to 1) be English speaking, 2) have at least one child between the ages of three and six years old without any known developmental delays, and 3) not currently be participating in any other family-based treatment or

parenting interventions. When families had more than one child in the eligible age range, study staff randomly selected one child to be the focus of study assessments.

Data were collected at baseline and 12 weeks later. Measures included a series of questionnaires parents filled out regarding their children's behavior, their parenting style, their family relationships and their sense of parenting self-efficacy. Each parent-child dyad was also brought in to the research center at both baseline and follow-up time points to participate in a standardized series of video-recorded play tasks. Parents were provided monetary compensation for their time and effort in completing the assessment battery.

Measures

Parenting style. Parenting style was captured using the Parenting Scale (PS) (Arnold et al., 1993; O'Leary, 1995), a commonly used 30-item self-report measure which provides parents with a common parenting situation and two opposing options for how they might respond. Parents are asked to rate on a seven point scale between the two answers how fully either option characterizes their typical response, or if they fall somewhere in the middle. For example, parents might be given the prompt, "When I want my child to stop doing something. . . ." with the options, "I firmly tell my child to stop" or, "I coax and beg my child to stop." Parents choose any of seven marks between these two responses to represent how much they tend to act like one anchor or the other. While the factor analysis of the PS has shifted over the years, two subscales have remained consistent over time and will be used in these analyses (Prinzle, Onghena, & Hellinckx, 2007; Rhoades & O'Leary, 2007). The Overreactivity subscale which captures a parent's tendency to use authoritarian, strict and punitive parenting practices and the Laxness subscale which captures a parent's tendency to engage in overly permissive and

unstructured parenting. The PS has shown well documented internal consistency for the Total ($\alpha = .84$), Laxness ($\alpha = .83$) and Overreactivity ($\alpha = .82$) scales.

Parenting self-efficacy. PSE was measured for this study using the Efficacy subscale of the Parents' Sense of Confidence Scale (PSOC) (Johnston & Mash, 1989). The subscale consists of seven items that ask parents to indicate on a six-point Likert-scale how much they agree or disagree with statements such as "Being a parent is manageable and any problems are easily solved." The internal consistency of the Efficacy subscale has been found to range from $\alpha = .76$ to $.88$ (Johnston & Mash, 1989; Lovejoy, Verda, & Hays, 1997).

Observed child off-task behavior. The amount of time children spent off-task during the video-taped parent-child interaction sessions at follow-up will serve as the outcome variable for this study. Child behavior was coded using the Dyadic Parent-Child Interaction Coding System-II (DPICS-II) (Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994) and coding was performed by trained observers who were kept blind to subject's study conditions.

The parent-child interaction took place in the lab and consisted of three tasks, 1) an interactive play task in which the parent and child were provided with Legos and asked to build a model together, 2) an independent play task in which the parent was asked to fill out informational surveys while their child colored independently, and 3) an art project task during which the parent and child worked together on two art projects, after each of which the parent was told to have the child to clean up. These tasks were chosen as they have been found to elicit both positive and problematic behaviors in previous research (Eyberg, Edwards, Boggs, & Foote, 1998; Webster-Stratton, 1998).

The amount of time families spent participating in each task was kept constant across subjects. Child off-task behavior scores were calculated by taking a percentage of the total interaction task time that the child spent not engaging in the task at hand and/or displaying either verbally or physically negative behaviors towards their parents, the furniture or any play objects. Verbal negative behaviors included any vocalizations that were aversive or unpleasant such as insults, whining, complaining, yelling, name-calling or cursing. Children's statements that were negative but directed towards themselves such as, "I'm not good at this" were not coded as negative verbal as they were not directed towards the parent, environment or materials. Physically negative behaviors were any actions that had the potential to cause pain or damage including slapping, punching, hitting, kicking, grabbing a parents hand, hair or clothing, throwing objects, or using objects in a menacing way. Examples include a child deliberately breaking crayons, throwing objects at the parent, or trying to leave the room. Some behaviors were coded as both negative verbal and negative physical concurrently such as when screaming and kicking occurred simultaneously for more than two seconds. Such instances were only counted towards the total off-task behavior time score once. Reliability for the DPICS-II has been established by Webster-Stratton (1998), who found intraclass interrater-reliability correlations of .70 or more for all coded categories.

Chapter 3. Results

Analyses for this study were performed using IBM SPSS Statistics version 20. For dual-parent families in which both the mother and father provided data, only the mother's data were used to ensure comparability across subjects and to avoid intercorrelation of data from parents of the same child. The remaining sample consisted of 268 mother-child dyads.

Descriptive analyses

Descriptive data are presented in Table 3.1. The resulting sample of 268 families was composed of 51.6% male children. With respect to race and ethnicity, the sample is representative of the mid-size Southeastern city where the data were collected with 59.3% of participants identifying as non-Hispanic White, 34.3% identifying as African American or Black, 3.7% identifying as Hispanic, 1.5% identifying as Asian or Pacific Islander, and 1.1% identifying as Other. Mothers' mean age was 33.09 years ($SD = 6.79$) and 27.2% of mothers were single-parents. Mothers were more highly educated than the general population with 2.2% having a high school education or less, 40.2% having attended some college, 40.9% having completed college and 17.2% having an advanced degree.

Descriptive data on the main predictor variables of interest, PSE, laxness, and overreactivity revealed normal distributions. Descriptive data on the amount of time children spent off-task during the observation session revealed a non-normal distribution

with a highly positive skew and significant kurtosis (see Table 3.1). Children tended to be off-task for only a small percentage of the total observation time, with large variability ($M = 7.2\%$, $SD = 7.7\%$). To address this violation of normality, square root transformations were performed on all variables entered into the model prior to the main analyses. The transformation of the criterion variable resulted in skew and kurtosis measures within the acceptable range.

Correlations among each of the untransformed demographic variables and observed child negative behavior are presented in Table 3.2. Pearson correlations revealed significant relationships between the amount of time the children spent off-task and the children's gender and age with male gender and younger age associated with spending more time off-task. Additionally, household makeup was associated with the amount of time children spent off-task with children from dual-parent families spending more time off-task than those from single-parent households. Each of these factors were retained as covariates in the main analyses.

Hierarchical regression analyses

To assess if a moderating relationship exists between PSE and parenting style in predicting child off-task behavior two hierarchical multiple regression analyses were performed, the first with lax parenting style as a predictor and the second with overreactive parenting style as a predictor. Hierarchical multiple regression was chosen because the data were made up of a mix of continuous and categorical measures and the resulting bivariate regression lines can be interpreted to determine how the relationship between parenting style and child negative behavior changes for different levels of PSE (Fairchild & McQuillin, 2010).

Following square root transformation, all predictor variables and the interaction terms were centered in order to ease interpretation of the resulting regression coefficients and reduce multicollinearity between the individual predictors and their interaction terms (Fairchild & MacKinnon, 2008; Fairchild & McQuillin, 2010).

Lax parenting style. To assess the moderating effects of PSE on the relationship between lax parenting style and negative child behavior, a hierarchical multiple regression was performed. The first block included the significant demographic-level covariates found among the potential predictors, namely child gender and age, and family dual or single-parent status, entered simultaneously. The second block assessed the main effects for laxness and PSE, and the final step assessed the interaction between laxness and PSE by entering the product of these two centered constructs.

Results of the regression revealed that while the overall model was statistically significant ($R^2 = .173$, $F(6, 265) = 9.037$, $p < .001$, neither the main effects of PSE, $\beta = -.039$, $t(260) = -.673$, $p = .502$, lax parenting $\beta = .023$, $t(260) = .408$, $p = .684$, nor the interaction of these variables, $\beta = .019$, $t(259) = .340$, $p = .734$ significantly predicted the amount of time children spent off task (see Table 3.3).

Overreactive parenting style. To assess the moderating effects of PSE on the relationship between overreactive parenting and negative child behavior, the previous hierarchical multiple regression was repeated with level of parental overreactivity entered instead of laxness. As with the first regression, the overall model was statistically significant ($R^2 = .173$, $F(6, 265) = 9.000$, $p < .001$, but once again, neither the main effects of PSE, $\beta = -.035$, $t(260) = -.564$, $p = .574$ and overreactivity $\beta = .019$, $t(260) =$

.306 , $p = .759$, nor their interaction $\beta = .005$, $t(259) = .078$, $p = .938$ significantly added to the prediction of child off-task behavior (see Table 3.4).

These results do not support the hypothesis that PSE moderates the relationship between parenting style and observed child off-task behavior. Surprisingly, the main effects for the predictor variables were not significant either, despite previous research suggesting robust relationships between child behavior patterns and both parenting style and PSE. For this reason, it is possible that the data collection methods played a role in contributing to the null results, most likely in the case of the criterion variable, observed child off-task behavior. The short, lab-based observational sessions may not have captured a full and representative picture of the children's general behavioral tendencies over time.

Post-hoc Analyses

An alternative data source for capturing child behavior tendencies collected during this study was a parent-report measure, the Eyberg Child Behavior Inventory (ECBI). The ECBI is a 36-item instrument that asks parents to rate the intensity of their child's behavior problems by asking how often their child currently engages in certain disruptive behaviors such as interpersonal aggression, emotional difficulties, and self-regulation deficits. Parents respond on a 7-point scale ranging from "1 - Never" to "7 - Always." Scores for each item are summed for a subscale range of 36 to 262 with higher scores indicating more problem behavior. The ECBI has continually shown high levels reliability, with Chronbach's alpha ranging from .92 to .95 (Gross et al., 2007) and high internal consistency, (.95) (Robinson, Eyberg and Ross, 1980).

The ECBI was not originally used as the criterion for this analysis due to the potential for source confounding with the parents' reports of their parenting style and PSE, however, the relationship between PSE, parenting style and this parent report data on child behavior is worth examination to inform further research.

To determine if a significant interaction relationship exists between parenting style and PSE in predicting parent-reported child behavior problems the hierarchical regression analyses were repeated with the ECBI data collected at follow-up as the outcome measure. Descriptive and correlational data for the ECBI intensity scales are included as supplements at the bottoms of Tables 3.1 and 3.2, respectively. Significant correlations were found between ECBI scores and child age and race with older child age and minority race predicting less parent reported problem behavior. Each of these factors was included in the first steps of the regression models as covariates. All variables were centered prior to running the regressions.

Results of the regression looking at PSE and laxness in predicting ECBI scores revealed an overall significant model, ($R^2 = .242$, $F(5, 265) = 16.60$, $p < .001$) and a significant PSE x laxness interaction, $\beta = -.23$, $t(260) = -2.25$, $p < .001$ (see Table 3.5). The main effects were significant for both laxness, $\beta = .108$, $t(261) = 1.976$, $p < .05$, and PSE, $\beta = -.345$, $t(261) = -6.216$, $p < .001$. These results suggest that while increased levels of lax parenting predicted greater parent-reported behavior problems in children, and greater levels of PSE predicted fewer parent-reported behavior problems in children, the two variables combine to predict parent-reported child behavior problems to a significantly greater degree than each of the predictors alone. The nature of this interaction relationship was probed further through the schematic representation approach

put forth by Aiken & West, 1991. Laxness and PSE scores were re-coded into categories based on whether they fell below, within, or above one standard deviation of the mean. Each of these new categorical variables was then plotted against child behavior problems as reported on the ECBI. Examination of this interaction plot reveals that for parents who report low levels of PSE, degree of laxness is a greater statistical predictor of child behavior than for parents who report high levels of PSE (see Figure 3.1).

Results of the regression looking at ECBI scores as predicted by overreactive parenting and PSE also revealed a significant overall model, ($R = .49$, $R^2 = .240$, adjusted $R^2 = .225$, $F(5, 265) = 16.42$, $p < .001$), however the interaction of these two terms did not provide significantly more predictive ability, $\beta = .059$, $t(261) = 1.072$, $p < .285$. The main effects were both significant with overreactive parenting predicting greater child behavior problems, $\beta = .159$, $t(261) = 2.697$, $p < .01$ and higher PSE predicting fewer child behavior problems $\beta = -.302$, $t(261) = -5.137$, $p < .001$ (See Table 3.6).

Interpretation of the regression coefficients reveals that for every standard deviation increase in overreactivity, one can expect an increase of .16 standard deviations in parent-reported child behavior problems, a small effect size ($sr^2 = .02$) and for every standard deviation increase in PSE one can predict a decrease in parent-reported child behavior problems of .302 standard deviations, a small to medium effect size of ($sr^2 = .09$).

Table 3.1 *Descriptive Data for Study Sample (N=268 families)*

	M	SD	Minimum	Maximum	Scale range	Skew	Kurtosis
Demographic variables							
Mother's level of education							
<= High School	2.10 %						
Some college	40.40 %						
College	40.10 %						
Advanced degree	17.20 %						
Parenting status							
Dual-parent household	62.80 %						
Single-parent household	27.20 %						
Child race/ethnicity							
Non-Hispanic white	59.30 %						
African American/Black	34.30 %						
Hispanic	3.70 %						
Asian or Pacific Islander	1.50 %						
Other	1.10 %						
Child Gender							
Male	51.60 %						
Female	48.40 %						
Mother's age (years)	33.09	6.79	20	60			
Number of children in home	2.03	.90	1	5			
Child age (months)	54.78	13.71	32.00	83.00			
Study variables of interest							
Mother's baseline PSE	30.53	5.83	11.00	42.00	7.00 – 42.00	-.55	.24
Mother's baseline laxness	12.52	4.51	5.00	28.00	5.00 – 35.00	.54	.25
Mother's baseline overreactivity	14.00	4.72	5.00	31.00	5.00 – 35.00	.49	.03
Child off-task time at follow-up	7.20 %	7.70 %	0 %	54.00 %	0 – 100 %	2.83	11.17
Mother's report of child behavior problems	102.58	24.49	44.00	179.00	36 - 262	.22	-.04

Table 3.2 *Bivariate Correlations Between Study Variables (N=268)*

	1	2	3	4	5	6	7	8	9	10	11
1. Child off-task time at follow-up (%)	--										
2. Parent age	.05	--									
3. Number of children in the home	-.01	.15*	--								
4. Mother's level of education	.07	.36**	-.01	--							
5. Child male gender	.15*	-.04	-.02	.02	--						
6. Racial minority status	-.05	.06	.07	-.08	.01	--					
7. Child age	-.29**	.15*	.16**	-.06	.09	.11	--				
8. Single- parent household status	-.13*	-.06	-.15*	-.18**	-.08	.43**	.10	--			
9. Mother's baseline laxness	.02	.08	.08	.00	-.02	-.02	-.04	-.02	--		
10. Mother's baseline overreactivity	.05	-.02	-.02	.04	.07	-.20**	.01	-.14*	.30**	--	
11. Mother's baseline PSE	-.07	-.10	.04	-.09	-.11	.17**	-.04	.14*	-.10	-.37**	--
12. Mother's report of child behavior problems	--	.01	-.04	-.01	.12	-.22**	-.23**	-.06	.15*	.29*	-.39**

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3.3 *Standardized Coefficients and Explained Variance for Hierarchical Multiple Regression Predicting Child Off-task Time Based on PSE and Mother's Laxness.*

	Step 1	Step 2	Step 3
Child gender	.14*	.14*	.13*
Child age	-.38***	-.38***	-.38***
Single parent status	-.08	-.07	-.07
Mother's baseline PSE	--	.02	.02
Mother's baseline laxness	--	-.04	-.04
Laxness x PSE	--	--	.02
ΔR^2	.17***	.002	.00
ΔF	17.96	10.86	9.04
Δdf	262	260	259

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3.4 *Standardized Coefficients and Explained Variance for Hierarchical Multiple Regression Predicting Child Off-task Time Based on PSE and Mother's Overreactivity.*

	Step 1	Step 2	Step 3
Child gender	.14*	.13*	.13*
Child age	-.38***	-.38***	-.38***
Single parent status	-.08	-.07	-.07
Mother's baseline PSE	--	-.04	-.04
Mother's baseline overreactivity	--	-.02	-.02
Overreactivity x PSE	--	--	.01
ΔR^2	.17***	.002	.00
ΔF	17.96	10.84	9.00
Δdf	262	260	259

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3.5 *Standardized Coefficients and Explained Variance for Hierarchical Multiple Regression Predicting Parent-Reported Behavior Problems Based on PSE and Mother's Laxness.*

	Step 1	Step 2	Step 3
Child minority race	-.19**	-.13*	-.13*
Child age	-.22***	-.23***	-.23***
Mother's baseline PSE	--	-.35***	-.34***
Mother's baseline laxness	--	.11*	.12*
Laxness x PSE	--	--	-.12*
ΔR^2	.09***	.14***	.02*
ΔF	13.27	22.90	5.06
Δdf	263	261	260

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 3.6 *Standardized Coefficients and Explained Variance for Hierarchical Multiple Regression Predicting Parent Reported Behavior Problems Based on PSE and Mother's Overreactivity*

	Step 1	Step 2	Step 3
Child minority race	-.19**	.10	.11
Child age	-.22***	-.23***	-.23***
Mother's baseline PSE	--	-.30***	-.30***
Mother's baseline overreactivity	--	.16**	.16**
Overreactivity x PSE	--	--	.06
ΔR^2	.09***	.15***	.00
ΔF	13.27	24.79	1.15
Δdf	263	261	260

* $p < .05$. ** $p < .01$. *** $p < .001$

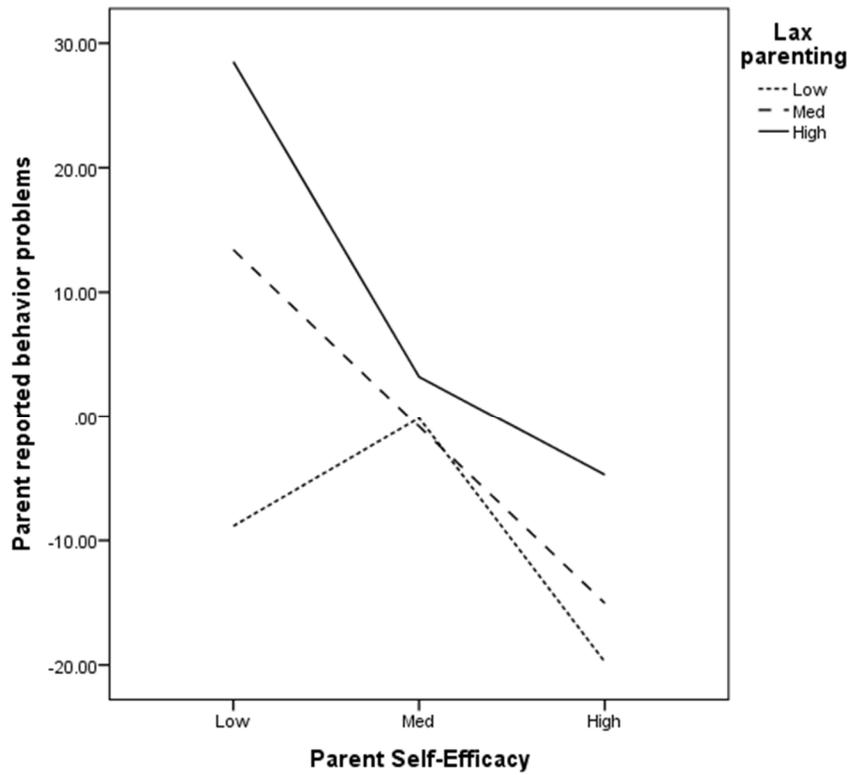


Figure 3.1. *Interaction of High, Medium and Low Levels of Laxness and PSE in Predicting Parent-Reported Child Behavior Problems.*

Chapter 4. Discussion

The results of the initial analyses performed in this study did not lend support to the hypothesis that PSE plays a moderating role in the relationship between parenting style and observed child behavior. However, subsequent post-hoc analyses using a parent-report measure of child behavior tendencies did support a significant moderator role for PSE in reducing the statistical impact of lax parenting on child behavior problems such that among mothers who reported higher PSE, level of lax parenting had less of a statistically predictive effect on child behavior than among mothers who reported low PSE. Consistent with hypothesis 1, parents who engage in lax parenting but none-the-less feel efficacious may exhibit confidence and model resilience for their children who in turn show better behavior.

Additionally, this finding may be explained by a transactional relationship wherein child behavioral tendencies may elicit different types of parental responses (Del Vecchio & Rhoades, 2010; Sameroff, 2009). Parents of children with low levels of behavior problems who report high PSE but engage in lax parenting practices, may do so because of a recognition that their children respond best to this parenting approach. These parents may have children who are naturally, or temperamentally, well-behaved and thus they feel they do not need to provide much direction or cajoling to get their children to do as they ask. Consistent with this transactional model, parents with children who demonstrate disruptive behavior may have reduced PSE and engage in high levels of lax

parenting because their children's behavior undermines their confidence and they are too overwhelmed by or unsure of how to attempt to change the situation.

The transaction model may further account for why no interaction effect was found between level of PSE and overreactive parenting. Parents of children who are naturally more compliant would not consciously choose to be overreactive in order to maintain their children's behavior. Overreactivity, instead, may be a reaction to a child's proclivity for increased non-compliance, which may both undermine PSE, and increase behavioral problems, consistent with the research described above (Bandura, 1977; Patterson, DeBaryshe, & Ramsey, 1989).

To attempt to address the issue of bidirectional influence between the predictors and outcomes, the current study used data on child behavior collected 12 weeks following the collection of data on parenting style and PSE. Still, it is possible that earlier child behavioral and temperamental tendencies influenced the parents' parenting styles and PSE prior to baseline data collection. Taken together, the current study's findings suggests that a future area for continued research may be to look at how PSE and child behavior interact to predict parenting style.

While children's behavior may have an effect on parents' parenting practices, parents are in more of a position to alter the maladaptive interaction patterns than are children. Past research has demonstrated that child behavior is malleable if parenting style changes, and that parenting style has a lasting effect on children's behavior independent of the relationship child behavior has on parenting. O'leary et al. (1999) used path analysis and reciprocal effects analysis to demonstrate that mothers' overreactive parenting style at baseline predicted children's externalizing behaviors but

found no evidence that children's externalizing behaviors at baseline had an effect on mothers' overreactive discipline at follow-up. Straus et al. (1997) found that the relationship between harsh parenting and later child behavior problems held even when controlling for earlier levels of child behavior problems. Clinically speaking, interventions designed to mitigate lax and overreactive parenting practices are therefore worthy of continued research, implementation and dissemination.

Finally, the current study's findings that high levels of PSE in combination with high levels of lax or overreactive parenting does not statistically predict worse child behavior problems (counter to hypotheses 3 and 4), lend further support to previous research which found that increasing PSE is a worthy goal for parent training programs, and can likely only help to improve child behavior (Jones & Prinz, 2009). In fact, increasing PSE along with teaching skills may help to encourage parents to implement positive parenting strategies more confidently and consistently.

The results of the current study should be interpreted cautiously while taking into account the study's limitations. Data collected in this study from two different sources (observation and parent report) was meant to capture the same construct of child behavior yet resulted in discrepant findings. Both sources of data have their disadvantages. The use of observational assessment data was originally chosen for this analysis in order to provide a unique and unbiased account of the children's behavior. However, it is possible that the short, lab-based observational session in which children were provided one-on-one attention from their parents and asked to perform tasks that may or may not be typical of their day to day lives, may not have captured a full and representative picture of the children's general behavioral tendencies over time, especially if they were aware

they were being evaluated or if they felt uncomfortable in the unfamiliar setting. The ECBI was not originally used as the criterion for this analysis due to the potential for source confounding with the parents' reports of their parenting style and PSE, however, the relationship between PSE, parenting style and this parent report data on child behavior was worthy of examination in that it could inform whether continued research into the role of PSE as a moderator was warranted. Issues regarding measurement approach require further study and refinement before stronger inferences can be made about the nature of the moderating effect of PSE on the relationship between parenting style and child behavior.

Reconciling the role of PSE in relation to parenting practices and child behavior continues to be a challenge in the field. PSE is a nebulous concept that can play different roles at different times. While previous research on PSE has characterized this variable as a mediator and an outcome variable, this study adds to the little research that has examined this construct as a moderator and supports its continued study as a target for parenting training programs as well as examination into its role in the transactional relationship between child behavior and parenting style. Strengths of this study include the large, representative sample, the use of multiple data sources and dual data collection time points.

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