

OPTIMISM, PARENTAL SELF-EFFICACY, AND EXTERNALIZING BEHAVIOR IN
CHILDREN WITH DEVELOPMENTAL DELAY IN EARLY CHILDHOOD

by

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DISSERTATION ABSTRACT

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Doctor of Philosophy

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Title: Optimism, Parental Self-Efficacy, and Externalizing Behavior in Children with Developmental Delay in Early Childhood

Parents of children with developmental disabilities (DD) often face much greater challenges with their caregiving demands, which often increase across time as the level of associated child problem behavior stabilizes and intensifies with age. As a result, parents of children with DD often experience a heightened level of stress, anxiety, and depression. These outcomes become even more concerning for parents of children with DD who engage in externalizing forms of problem behavior (e.g., aggression). As such, this study proposed to examine a positive dimension of parental well-being that may be particularly relevant for parents of this population. Specifically, task related parental self-efficacy (PSE) was examined in the identification of its predictors, associations with child externalizing behavior (EB) across time, and the moderation of optimism within the child EB and task related PSE relationship.

The predictors of task related PSE were examined among parental and child factors. Results indicated that only child EB demonstrated significant, large effects on task related PSE. Two time points were examined to identify the directionality of influence between child EB and task related PSE. Results showed that while task related PSE inversely influenced child EB across time, child EB was not a significant influence

on task related PSE across the same time period. Additionally, while optimism has shown to exhibit protective effects among those who are experiencing psychological distress, current findings showed that optimism did not moderate the strength of the relationship between child EB on task related PSE. This outcome may be in part due to the initial absence of the causal relationship of child EB on task related PSE across time, as identified during a previous analytic step within this study. These findings suggest that the level of task related PSE is inversely associated with the level of child EB. However, when considered within the context of time, there are differences in how task related PSE and child EB influence one another. Based on these results, it is evident that additional factors may be at play in the consideration of how task related PSE is impacted across time as the child with DD ages.

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DEDICATION

For my parents, my cheerleaders since birth.

For my husband, my rock since high school.

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CHAPTER I

INTRODUCTION

Background

Parents of children with developmental disabilities (DD) face much greater caregiving demands compared to parents of typically developing children (Hastings & Brown, 2002; Woodman & Hauser-Cram, 2013). These demands may be related to cognitive and functional skill deficits of children with DD or heightened problem behaviors (Baker et al., 2002; Woodman & Hauser-Cram, 2013). Early developmental delays in one or more domains of development, such as language, cognitive, or motor skills, that increases the risk for the identification of an intellectual or developmental disability as the child gets older (Baker et al., 2002). Children with DD are three to four times more likely to experience a behavioral or mental health disorder relative to their typically developing counterparts (Baker et al., 2002; Emerson, 2003). Caregiving demands for children with DD often increase across time as significant problem behaviors stabilize and intensify with age. As such, caring for a child with DD is typically associated with a heightened level of stress, anxiety, and depression for these parents (Baker et al., 2002; Hastings et al., 2005). Such stressors not only negatively impact parents' mental and physical health, but also affect the quality of their relationship with their child and their ability to parent effectively (Peer & Hillman, 2014). Therefore, the accumulation of stressors beyond those typically experienced in daily life pose poor mental health risks for parents of children with DD, particularly across time as their children age (Cheng et al., 2014; Hastings et al., 2005).

Externalizing Behavior

Among the caregiving demands for children with DD, parents frequently report struggling the most with addressing their children's externalizing forms of problem behavior, such as aggression and disruptive behavior (Hastings & Brown, 2002; Hodgetts, Nicholas, & Zwaigenbaum, 2013; Matson, Dixon, & Matson, 2005). One of the most cited significant stressors for parents and family caregivers is the extent of externalizing behavior (EB) exhibited by their child (Hastings & Brown, 2002; Weiss, Tint, Paquette-Smith, & Lunskey, 2016). To make matters more concerning, patterns of EB have been found to remain high and stable across early childhood through adolescence, or to increase from middle childhood to adolescence among those with DD (Einfeld et al., 2006; Woodman & Hawuser-Cram, 2013). Furthermore, EB is associated with numerous negative outcomes for this population, including impaired social relationships, changes in home and school placements into more restrictive, residential or self-contained settings with increased risk of victimization (Baker et al., 2002; Einfeld et al., 2006; Fitzpatrick et al., 2016). Given these findings, it is evident that children with DD and their parents are at a considerable risk for experiencing long-term psychosocial stressors and negative life outcomes. As such, numerous studies have focused on the potential deleterious aspects of child problem behavior on parental mental health to inform intervention practices. However, less is known about the positive dimensions of parental well-being and protective factors that are specifically important to the population of parents of children with DD.

Parental Self-Efficacy

Parenting self-efficacy may serve as one crucial positive dimension of parental well-being for parents of children with DD. Based on Bandura's (1997, 1986) social cognitive theory, self-efficacy is defined in terms of one's own perceptions of the individual's abilities and skillsets within a defined domain. Self-efficacy is thus described as being domain-specific, as it is likely to vary for different behaviors in different contexts. Within the parenting domain, parental self-efficacy (PSE) can be measured on a task specific level, which refers to parents' beliefs in their own ability to effectively manage and succeed in specific situations or accomplish certain tasks (Sanders & Wooley, 2005). According to Bandura (1997), task level self-efficacy is a better predictor of performance, as specific self-efficacy beliefs facilitate one's actions and influences the quality of their performance. Hence, task related PSE holds implications about the caregivers' perceived competence and psychological well-being related to the management of challenging tasks, such as addressing their children's EB. From a theoretical standpoint, a high sense of PSE is beneficial as parents are more likely to be persistent throughout the tasks in which they feel competent in (Bandura, 1997). Furthermore, PSE can play a major role in not just the completion of tasks, but also initiation of tasks based on one's own perceived competence to see it through (Bandura, 1997; Weiss et al., 2016). Such evidence supports the importance of developing and strengthening PSE for parents of children with DD, particularly those who engage in EB.

Researchers have investigated PSE as a malleable construct that has shown to impact various relationships between parent behavior (e.g., parenting approach and style) with other internal and external variables, including parental stress, anxiety, depression,

and child problem behavior (Anderson, 2006; Baker et al., 2002; Hastings & Brown, 2002; Hastings et al., 2005). For more than two decades, general research has identified PSE as being a crucial factor in predicting behavior and further understanding patterns of parental psychological well-being (Hastings & Brown, 2002; Woodman & Hauser-Cram, 2013). Studies have shown that more positive PSE is associated with less psychological distress and maternal depressive symptoms, as well as impacting the positive adjustment in children of all ages (Ardelt & Eccles, 2001; Meunier, Roskam, & Browne, 2011; Sanders & Wooley, 2005). Research further suggests that the possession of this sense of personal competence can be a critical buffer against adversity, enabling and empowering parents to cope effectively even with the most challenging level of child behavioral demands (Meunier et al., 2011). Overall, PSE has been explored as a main effect on other outcomes (e.g., parental stress, child adjustment), but limited in its role as an outcome itself in association with other pertinent variables. This is particularly true of studies of families of children with DD. Knowing that PSE serves as a positive construct to parental well-being and positive parent-child outcomes, it would be important to further explore associative factors that contribute to the changes in the levels of PSE for parents of children with DD. As previously discussed, presence of child EB poses heightened risk for parents to develop negative mental health outcomes that can ultimately impact their caregiving effectiveness. As such, further exploration is warranted in identifying the predictors of PSE, and looking at the relationship between PSE and child EB across time among parents of children with DD.

Optimism

Optimism is another positive construct to consider within the discussion of parental well-being for parents of children with DD. Optimism has been defined as a stable dimension of one's personality and characteristic that represents his or her expectations about future events and outcomes (Carver & Scheier, 2014). Optimism can be further categorized as either dispositional or situational. Dispositional optimism refers to one's generalized outcome expectancies that positive things, rather than negative things, will occur (Carver & Scheier, 2014). On the other hand, situational optimism refers to one's expectancies that are specific to certain events or contexts rather than a generalized outlook (Carver & Scheier, 2014).

Studies have shown that optimism is associated with various positive physical and mental health outcomes across different populations (Baker, Blacher, & Olsson, 2005; Conway, Magai, Springer, & Jones, 2008; Ekas, Lickenbrock, & Whitman, 2010). Literature suggests that maternal optimism, in particular, may lead to less distress when dealing with highly challenging child behaviors (Baker et al., 2005; Peer & Hillman, 2014). Furthermore, optimism has demonstrated protective effects among individuals who are at high-risk for experiencing psychological distress, including populations of families of children with DD. Research indicates that dispositional optimism is a resilience factor for parents of this population, such as moderating relationships between child problem behavior and parent well-being, as well as relations between parenting stress and positive feelings towards their children with DD (Baker et al., 2005; Kurtz-Nelson & McIntyre, 2017). Bandura (1986) also echoes the important role that optimism plays in the protection of one's self-efficacy in the face of adversity and hardships.

Because an optimistic individual believes that success is attainable, he/she is more likely to persist and persevere through the challenges until the desired outcome is attained (Carver & Scheier, 2014). Such tendencies would be essential to further explore among parents of children with DD, as they may face various challenges and adversities related to the management of their children's problem behaviors. More specifically, dispositional optimism may be key in understanding the relationship between PSE and child EB across time among parents of children with DD.

Conclusion

Parents of children with DD are presented with a unique set of challenges that are associated with caregiving of their children. Among the caregiving responsibilities include management of child problem behaviors that often stabilize or increase as children with DD reach school age (Anderson, 2006; Baker et al., 2002). Externalizing forms of problem behavior, such as aggression and disruptive behavior, are often observed among children with DD, creating a heightened level of parenting stress that can negatively impact parent well-being, parent-child interactions, and child adjustment through life (Einfeld et al., 2006; Hastings & Brown, 2002; Hodgetts et al. 2013). PSE is a positive dimension of looking at how parents of children with DD are impacted by the presence of their child's problem behavior. Increased levels of PSE have been shown to be associated with more positive parent-child relational outcomes, as well as decreases in the level of parental stress and mental health symptoms, such as depression and anxiety (Anderson, 2006; Weis et al., 2016). Therefore, further exploration of PSE is necessary within studies of families with DD, including predictors of PSE and its associations with child EB across time. Dispositional optimism should also be considered within this

research, as it provides another positive dimension of understanding the possible associations between PSE and child EB. As such, this study proposes to examine parent and child variables that predict PSE, as well as the associations between PSE and child EB across time in early childhood in a sample of families with young children with DD. Two time points are included: Time 1 (baseline) and Time 2 (9-10 months post-baseline).

Research Questions

This study aims to address the following research questions:

1. *Which parent and child variables are associated with task related PSE?*

Understanding the parent and child variables that are associated with various levels of PSE would be important to consider among families of children with DD. While studies have shown that parental variables, such as gender, age, and education to be predictive of PSE, child variables have been limited in examination (Carless et al., 2015; Woodman & Hauser-Cram, 2013). As such, it is predicted that similar parental variables will be predictive of task related PSE as well as problem behavior of children with DD. Thus, specific parental demographic variables will be investigated, as well as child demographic variables including their externalizing behavior.

2. *Is there an association between task related PSE and child EB? If so, how are they associated across time?* As the occurrence of child problem behavior often challenges the parent's sense of competency, it can be assumed that the parent's self-efficacy is also impacted in some way. Looking at how PSE may be affected by child EB is warranted to further understand the relations between these two variables.

Furthermore, considering that stability and increase of child problem behavior is often observed among children with DD as they age, it is necessary to examine any existing

associations between variables within the context of time. As such, it is predicted that task related PSE will be inversely associated with child EB, and this association will remain constant across time. Figure 1 depicts the associated relationships between the variables of interest.

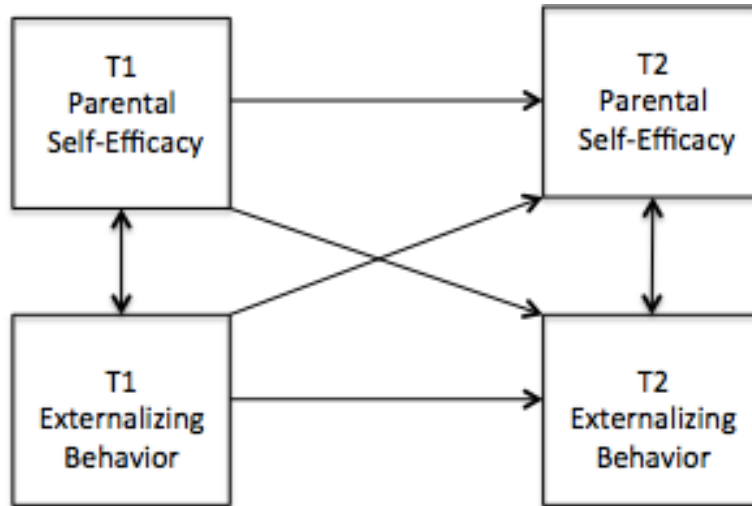


Figure 1. Associated relationships among variables of interest

3. *Does dispositional optimism moderate the associations between task related PSE and child EB across time?* Dispositional optimism has demonstrated protective effects between different variables among high-risk populations of families of children with DD (Conway et al., 2008; Ekas et al., 2010). As such, it is predicted that dispositional optimism will moderate the associations between child EB and task related PSE across time. Figure 2 depicts the hypothesized associations among the variables of interest.

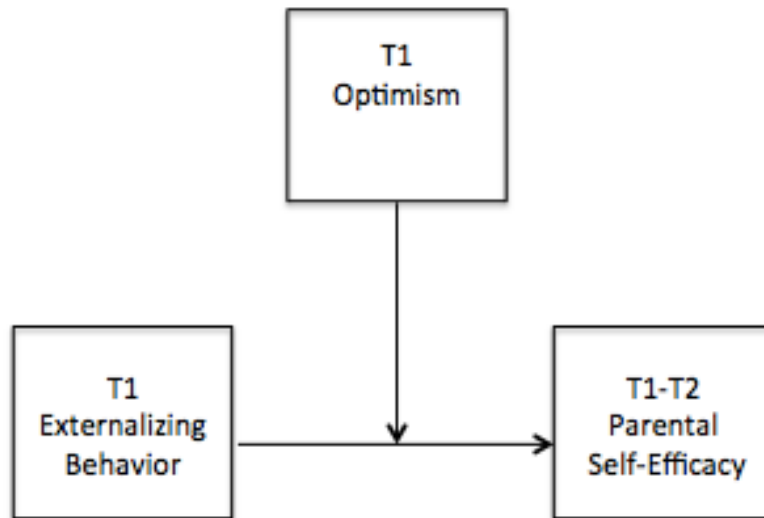


Figure 2. Hypothesized associations among variables of interest

CHAPTER II

METHODS

Participants

The participants were from a larger intervention study of families with preschool-aged children with DD (Oregon Parent Project; R01HD059838, McIntyre, PI). This study analyzed data from a sample of 180 parents of preschool children with DD, who were recruited from agencies that provided services to eligible children for early intervention and early childhood special education within a midsize city in Oregon. Phone screenings were then conducted with recruited parents in order to determine if their children met the inclusionary criteria: 1) age 2.5-3.5 years, 2) current eligibility for an individual family service plan based on a developmental delay or disability, and 3) reside with the primary caregiver/legal guardian for at least a year. The specific aims of the larger study precluded children who were nonambulatory, deaf, or blind, from participating in the study.

Consent procedures. All study procedures were approved by the Institutional Review Board at the University of Oregon. Verbal consents were obtained from potential parent participants before the start of eligibility screening, and written informed consents were obtained from those who were found eligible. Parents were given the opportunity to look over the details of the study procedures provided in the written consents, and ask any questions prior to the start of the study.

Study Procedures

After the parents consented to participate in the study, the Vineland Adaptive Behavior Assessment-II (VABS-II; Sparrow, Cicchetti & Balla, 2005) was administered

by a trained research assistant over the phone to determine the extent to which children were experiencing delays in their adaptive functioning in the areas of communication, daily living skills, socialization, and motor skills. Next, parents participated in three in-home assessments that occurred at baseline, 3 months post-baseline, and 9-10 months post-baseline. For the purposes of this current study, the baseline and 9-10 months post-baseline time points were investigated, heretofore referred to as Time 1 and Time 2. Two trained research assistants conducted each of the in-home assessments. During each of the home visits, parents were given a written packet of questionnaires to complete and asked to engage in a parent-child interaction task that was filmed. Upon completion of the in-home assessments, participants received honoraria of \$100 for Time 1 and \$125 for Time 2. The current study utilized a subset of measures gathered during these larger assessments.

Measures

Demographics. Parents completed the family demographics questionnaire, which was conducted in an interview format during an in-home session. Variables of interest for this current study involved primary parent and child factors, including parent age, parent education, family income, child age, child gender, and child primary diagnosis.

Parent self-efficacy. Parents completed the *Parenting Tasks Checklist* (PTC; Sanders & Wooley, 2005) which is a 28-item rating checklist incorporating two subscales: Behavior Self-Efficacy (confidence in the management of specific child behaviors) and Setting Self-Efficacy (confidence in different settings). Parents are asked to rate their confidence in managing their child's problem behavior for each item based on a scale from 0 (certain I cannot do it) to 100 (certain I can do it). The ratings across

both the Behavior and Setting subscales are averaged to measure an overall level of parental self-efficacy across the two domains. The PTC has demonstrated high reliability for each of the subscales, and has been primarily used in evaluating the efficacy of parent training interventions (Sanders, Baker, & Turner, 2012; Sanders & Wooley, 2005). For the purpose of this current study, the average score of the 14 items within the Behavior Self-Efficacy subscale was used in order to investigate the construct of task related PSE regarding parents' perceived confidence in their ability to manage a range of challenging child behaviors. Internal consistency reliability for this sample is $\alpha = .94$.

Optimism. Parents completed *The Life Orientation Test Revised* (LOT-R; Scheier, Carver, & Bridges, 1994) questionnaire that measure parents' generalized optimism about current and future life events. Parents are asked to rate their degree of agreement with each of the 10 statements (e.g., "I'm always optimistic about my future") on a 0-4 Likert-type scale ranging from "Strongly Agree" to "Strongly Disagree". The final scores range from 1-24, with higher scores indicating more global optimism in the responder. The LOT-R is a commonly used measure within studies that are looking at a dispositional trait of optimism, and has been utilized frequently among populations of parents of children with DD with acceptable reliability and validity (Baker et al., 2003). Internal consistency reliability for the current sample is $\alpha = .84$.

Adaptive behavior. Parents completed the *Vineland Adaptive Behavior Scales 2nd Edition* (VABS-II; Sparrow et al., 2005), which is a norm-referenced semi-structured interview. This interview is used to get information on the level of adaptive behavior across four domains: Communication (expressive, receptive, and written language), Daily Living Skills (self-care, domestic, and community skills), Socialization (interpersonal

skills, leisure, and coping skills), and Motor Skills (gross and fine motor skills). Upon completion of the interview, the scores across the four domains are combined to provide an Adaptive Behavior Composite, which is then transformed to form a standard score ($M = 100$, $SD = 15$). This norm-referenced composite score depicts the level of skills in adaptive behavior functioning. The VABS-II has strong reliability and validity and has been widely used as a measure of adaptive skill acquisition in children with developmental disabilities. For the purpose of providing descriptive characteristics of the children's adaptive behavior, the total adaptive behavior composite standard score was used in this study.

Child problem behavior. Parents completed the *Child Behavior Checklist for Ages 1.5-5* (CBCL; Achenbach, 2000), which is a measure that contains 99-item norm referenced checklist related to a variety of child problem behaviors. Parents are asked to complete each item based on a current behavior or the occurrence of a behavior within the past two months. Parents indicate whether each item is “not true” (0), “somewhat or sometimes true” (1), or “very true or often true” (2). Complete CBCL yields a total problem behavior, broad-band Externalizing and Internalizing scores, and narrow-band scales. For the current study, the Externalizing T score ($M = 50$; $SD = 10$) will be used to indicate the presence and severity of externalizing forms of child problem behavior. The CBCL has demonstrated excellent reliability and validity data in its application with populations of young children with DD (Baker et al., 2005; Chorpita, Brown, & Barlow, 2016). For the current study, the Externalizing broad-band T score was used for analysis and interpretation. The internal consistency reliability of the Externalizing broad band score is $\alpha = .93$.

CHAPTER III

ANALYSIS PLAN

Preliminary analyses were conducted using SPSS to review and check the data for any errors. Specifically, attrition analysis was conducted to account for any missing data due to participant dropout. Furthermore, manipulation checks were conducted in order to identify any potential impacts of assigned study condition in the larger project (treatment vs. usual care) on the change of DV (PSE) and IVs (child EB and parent optimism). Analysis of these variables indicated that the data were normally distributed with no significant outliers or skewness that required further transformation. Additionally, collinearity diagnostic analysis was conducted in order to check for levels of correlation between the predictor variables.

Research Question 1: *Which parent and child variables are associated with task related PSE?*

In order to identify any correlations between parent demographic factors (i.e., age, education, and income), child factors (i.e., age, gender, primary diagnosis, externalizing behavior), and task related PSE, a multiple linear regression analysis was conducted. Bivariate associations between PSE and the parent and child factors were analyzed using the Pearson Correlation coefficients. In addition, the multivariate R of the combined predictors was used to evaluate and to identify the salient predictors that remained significant after accounting for the shared variance between those predictor variables.

Research Question 2: *Is there an association between task related PSE and child EB? If so, how are they associated across time?*

The cross-lagged panel model was used to evaluate the directionality of the associations between task related PSE and child EB across T1 (baseline) and T2 (9-10 months post-baseline) time points. The coefficients of the autoregressive paths were examined to identify the stability of the variables across time, along with the cross-lagged effects to determine the directionality of the associations between those variables.

Research Question 3: *Does dispositional optimism moderate the associations between task related PSE and child EB across time?*

This question was answered by using a hierarchical regression analysis. In order to evaluate the moderating power of optimism in relation to the association between EB (IV) on task related PSE (DV), optimism was entered first, then child EB, then the interaction effect between EB and optimism was included.

CHAPTER IV

RESULTS

The means, standard deviations, and the sample size of key demographic characteristics of parents and children are presented in Table 1.

Table 1

Child and Parent Demographic Variables

Demographic	Mean (SD)	N (%)
Child		
Age in months	36.97 (4.65)	
No. female		44 (24.4)
No. White/Caucasian		121 (67.2)
Primary diagnosis of ASD		24 (13.3)
Primary diagnosis of developmental delay		58 (33.0)
Primary diagnosis of speech/language delay		97 (53.9)
Adaptive behavior standard composite	81.58 (11.92)	
Parent		
Age in years	32.37 (7.20)	
No. female		166 (92.2)
No. White/Caucasian		139 (77.2)
No. bachelor's degree		23 (12.8)
No. working full or part-time		70 (38.9)
Annual family income in USD	39,281.25 (33,226.53)	

Primary caregivers were on average 32.37 years old (SD = 7.20), with 92.2% of the sample being female and 77.2% from White/Caucasian backgrounds. Approximately 13% of this sample identified as having a bachelor’s degree, and 38.9% working at least part-time or full-time. The average annual income was \$39,281.25 (SD = 33,226.53). Children within this dataset were on average 36.97 months (SD = 4.65). The majority of the children was male (75.6%) and from White/Caucasian backgrounds (67.2%). Children were identified with a primary diagnosis of ASD (13.3%), developmental delay (33.0%), or speech/language delay (53.9%). For analytic purposes, the diagnostic category of developmental delay incorporated a range of various sub-diagnoses, including cerebral palsy, chronic medical illness, sensory disorder, learning disability, social emotional delay, deaf/hearing impaired, attention deficit/hyperactivity disorder, fetal alcohol syndrome, motor delay, genetic disorder, or other. The average adaptive behavior composite standard score of 81.58 (SD = 11.92) indicated that the children in the sample were within the low range for their adaptive skills.

The means, standard deviations and the sample size of task related PSE (T1 and T2), optimism (T1), and child EB (T1 and T2) are presented in Table 2.

Table 2

Means, Standard Deviations, and Sample Sizes for Child and Parent Variables

Variables	<i>M</i>	<i>SD</i>	<i>N</i>
1. Task related PSE, T1	79.40	18.40	177
2. Task related PSE, T2	78.19	20.68	163
3. Optimism, T1	15.50	4.52	116
4. Externalizing Behavior T-Score, T1	58.52	12.90	180
5. Externalizing Behavior T-Score, T2	57.32	12.79	165

Research Question 1: *Which parent and child variables are associated with task related PSE?*

This first research question was addressed by examining the results of the bivariate correlation analysis and multiple linear regression analysis, which are presented in Table 3 and Table 4. Cohen's standard was used to evaluate the correlation coefficient of the Pearson r . The results identified three salient predictors of task related PSE being parent level of education ($r = .15, p = .04$), annual household income ($r = .16, p = .03$), and child EB ($r = -.52, p = .001$). Among these predictors, child EB demonstrated a strong inverse association with task related PSE, while other variables demonstrated trend level effects that were approaching significance, or did not have any significant associations present. Furthermore, even with the addition of the linear regression weight of the other variables, the multivariate R (.54) did not have any significant increase to its value. Meaning, the associations with task related PSE were being strongly driven by the child EB variable. A post hoc power analysis indicated that with a sample size of $n = 177$ and a two tailed alpha set to $p = .05$, there is sufficient power (.81) to detect a small to medium effect size ($r = .21$).

Research Question 2: *Is there an association between task related PSE and child EB? If so, how are they associated across time?*

The cross-lagged panel analysis was conducted in order to assess the directional influences and associations between task related PSE and child EB across time. This model is presented in Figure 3. The autoregressive coefficients for task related PSE (.76), and child EB (.63,) indicate that they are stable constructs across T1 and T2. The

standardized estimates represent the cross-lagged effects of task related PSE (T1) on child EB (T2), and child EB (T1) on task related PSE (T2). Based on the analysis, the standardized estimate of $-.12$ ($p = .03$) was significant and indicated that while task related PSE (T1) is inversely associated with child EB (T2), the standardized estimate of $-.01$ ($p = .86$) between child EB (T1) and PSE (T2) demonstrated that there are no significant directional association between these two variables.

Research Question 3: *Does dispositional optimism moderate the association between task related PSE and child EB across time?*

A hierarchical regression analysis was conducted in order to identify the moderating power of optimism on child EB and task related PSE. Specifically, dispositional optimism was examined to see if it altered the strength of the relationship between child EB on task related PSE. Optimism was significantly correlated with PSE at T1 ($r = .24, p = .000$), as well as with child EB at T1 ($r = .44, p = .001$). The results of the moderation analysis are presented in Table 5. During the first step of the analysis, Model 1 and Model 2 were examined for their significance in the absence of the interaction effect of optimism and child EB. Results indicated that Model 1 was significant at $F(1, 236) = 108.10, p = .000$, as well as Model 2 at $F(3, 217) = 43.03, p = .000$. While Model 3 with the inclusion of the interaction effect between optimism and child EB was also significant at $F(4, 218.45) = 32.31, p = .000$, it failed to account for any significant variance in comparison to the previous models ($\Delta R^2 = .002, p = .44$). Thus demonstrating the absence of any moderation of optimism on the association between child EB on task related PSE. A post hoc power analysis indicated that with a sample size of $n = 116$ and a

two tailed alpha set to $p = .05$, there is sufficient power (.81) to detect a small to medium effect size ($r = .26$). Considering the absence of the association between child EB on task related PSE as identified through research question 2, this result may be expected.

Possible implications and further explanation regarding these variables and results are provided within the discussion.

Table 3*Bivariate Correlations for Child and Parent Variables*

Variables	1	2	3	4	5	6	7	8	9	10
1. Task related PSE, T1	–									
2. Parent age in years	.05	–								
3. Parent level of education	.15*	.19**	–							
4. Annual household income	.16*	.17*	.41***	–						
5. Child age in months	-.09	.09	-.05	.12	–					
6. Child gender	.09	.17	.01	.02	.03*	–				
7. Child EB, T1	-.52***	-.13	.15***	.16*	.07*	-.15*	–			
8. ASD	-.11	-.09	-.14	.05	-.09	-.19**	.17*	–		
9. DD	.03	.20*	.02	.00	.20	.11	.04	-.28***	–	
10. Speech/language delay	.05	-.13	.08	-.03	.08	.02	-.16*	-.43***	-.75***	–

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

Note. PSE = parental self-efficacy; EB = externalizing behavior; ASD = autism spectrum disorder; DD = developmental delay

Table 4*Multiple Linear Regression of Task Related PSE and Parent and Child Variables of Interest*

Predictor Variable	<i>Unstandardized β</i>	<i>SE</i>	<i>Standardized β</i>	<i>t</i>	<i>sr</i>
Parent age in years	-0.07	0.18	-0.03	-0.37	-0.02
Parent level of education	-0.21	0.75	-0.02	-0.28	-0.02
Annual household income	0.54	0.40	0.10	1.35	0.09
Child age in months	-0.25	0.27	-0.06	-0.93	-0.06
Child gender	0.13	0.41	0.02	0.31	0.02
Child EB, T1	-0.74	0.10	-0.50	-7.36***	-0.48
ASD	-1.37	3.89	-0.03	-0.35	0.05
DD	1.81	-0.03	0.05	0.65	0.03
Speech/language delay	0.46	0.32	0.01	0.28	0.02

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

Note. PSE = parental self-efficacy; EB = externalizing behavior; ASD = autism spectrum disorder; DD = developmental delay

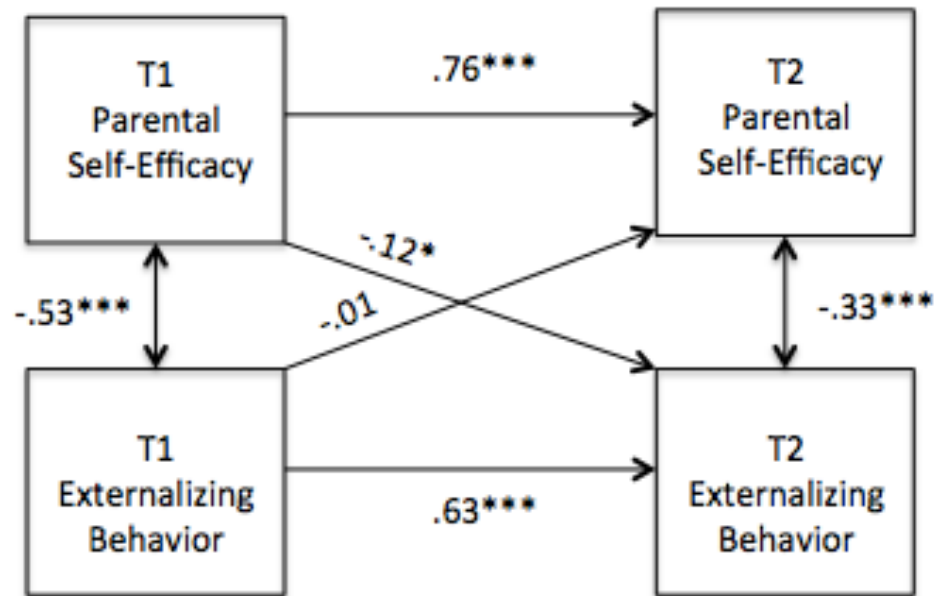


Figure 3. Cross-lagged model with standardized estimates

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

Table 5*Hierarchical Regression of Dispositional Optimism Moderating the Association Between Child EB and Task Related PSE*

Predictor Variable	Unstandardized β	Standardized β	SE	<i>t</i>	<i>F</i>	<i>R</i> ²
Model 1					108.10***	0.49
(Constant) Task related PSE, T2	14.95	-	6.32	2.36*	-	-
Task related PSE, T1	0.81	0.70	0.08	10.40***	-	-
Model 2					5.88**	0.54
(Constant) Task related PSE, T2	-4.56	-	14.67	-0.31	-	-
Task related PSE, T1	0.78	0.68	0.09	8.74***	-	-
Child EB, T1	0.07	0.04	0.14	0.49	-	-
Optimism, T1	1.14	0.23	0.33	3.41**	-	-
Model 3					0.60	0.54
(Constant) Task related PSE, T2	-26.00	-	31.37	-0.83	-	-
Task related PSE, T1	0.78	0.67	0.09	8.62***	-	-
Child EB, T1	0.44	0.26	0.50	0.88	-	-
Optimism, T1	2.54	0.51	1.84	1.38	-	-
Opt x EB Interaction	-0.02	-0.31	0.03	-0.77	-	-

p* < .05. *p* < .01. ****p* < .001.*Note.* PSE = parental self-efficacy; EB = externalizing behavior; Opt = optimism

CHAPTER V

DISCUSSION

Summary of Results

The purpose of this current study was to further examine a positive dimension of parental well-being that may be particularly applicable for parents of children with DD. Specifically, task related PSE was examined with the presence of child EB of those who have been identified with various forms of DD. Based on previous research (Woodman & Hauser-Cram, 2013) it was expected that similar parental and child demographic variables (i.e., age, gender, education level, and annual income) would also be significant predictors of task related PSE for this population. However, among the variables that were examined, only three predictors emerged. These included parental level of education, annual household income, and child EB. While parent's level of education and household income indicated significant, yet small effects, child EB demonstrated having a large effect on task related PSE that was inversely associated.

When looking at the directionality of the associations between child EB and task related PSE across time, results indicated that task related PSE (T1) on child EB (T2) was significantly associated while the path between child EB (T1) on task related PSE (T2) was not. The difference in the directionality of the associations suggest that there may be unexplored factors that may be contributing to the child EB (T1) and task related PSE (T2) relationship within the context of time.

Finally, the moderating power of optimism between the association of child EB and task related PSE was examined. Results indicated that optimism was not a moderating variable within this relationship. This outcome does support the finding from

research question 2, where the directional influence of child EB on task related PSE was absent.

Implications

The primary finding of this current study suggests that there is a strong, inverse relationship between task related PSE and EB among children with DD. Meaning, as the level of PSE in managing specific behavioral demands increase, the level of the child's externalizing behavior is likely to decrease. Thus, parents who are reporting more self-efficacy around the management of specific child behaviors are more likely to be engaging in effective strategies that are in fact decreasing the level of their child's problem behavior. This outcome further supports the concept of PSE as described within the literature as a critical element that enables parents to engage in actions to address and produce desired results under challenging circumstances (Bandura, 1997; Weiss et al., 2016). Meaning, parents who exhibit higher levels of task related PSE are more likely to persist through managing difficult levels of child externalizing behavior. This ultimately suggests that PSE is an important factor to consider when targeting the decrease of child EB. This understanding further extends the importance of including and integrating task related PSE targets within parent training interventions in the goal of addressing child problem behaviors among children with DD. Clinically, it would also be necessary to include PSE as a targeted domain of intervention for this population, as it is clearly a driving source in how parents manage to decrease their child's problem behavior. Interventions like the Triple Positive Parenting Program (Triple P; Sanders, 1999) aims to strengthen parents' self-regulation skills in the management of the daily tasks of parenthood by specifically seeking to increase their level of self-efficacy or confidence.

By exploring PSE within populations of parents of children with DD, it would increase the breadth of existing programs like the Triple P to also develop avenues of intervention that are appropriate and functional for those parents.

Targeting PSE within this population would be even more critical when considered within the context of time. Study results indicated that while task related PSE inversely impacts child EB within a 9 month timespan, child EB did not have any significant influence on task related PSE within the same timeframe. Meaning, the level of child EB did not impact the level of parent's sense of self-efficacy across time, while parent's self-efficacy in the management of their child's EB did in fact make an impact on the level of child's EB when observed 9 months later. This finding suggests that when considering task related PSE longitudinally, child EB alone does not hold any significant impact on that construct. This further suggests that there may be other factors to consider when looking at how and what influences one's level of task related PSE as a child ages. Knowing that child problem behavior, such as EB, often increases and stabilize with age for this population, it would be critical to examine the variables that are involved within the context of one's developmental period. Another implication of this finding highlights that children who engage in high levels of EB may not necessarily have parents who are at risk for having low PSE. Knowing this helps to rule out the ways in which parents of children with DD are perceived to be with risk in exhibiting low PSE based on the increased levels of their child's EB.

This understanding is further supported by the result of the study's third research question where optimism was assessed in its moderating role between child EB and task related PSE. As results indicated that no moderation was occurring through this model, it

is important to re-examine the utility of optimism in relation to the impact that child EB has on task related PSE within this study. Optimism is considered to be a stable construct of one's personality that functions to impact his or her perceptual tendency and outlook regarding events in one's life (Carver & Scheier, 2014). Thus, the current study considered optimism as an external construct that could potentially impact the strength of the child EB's causal association with task related PSE. However, in the absence of any initial significant causal association between those variables, optimism did not demonstrate any impact in this analysis. In an attempt to further understand the potential influence that child EB has on task related PSE, it was important to analyze the dynamic of this relationship with the inclusion of an external variable. From an intervention standpoint, this finding denotes that parents are not necessarily at an automatic disadvantage based on the level of their child's EB. Meaning, a parent's level of PSE is not necessarily compromised because of the level of difficulty of their child's problem behavior. Furthermore, even with the consideration of optimism between child EB and task related PSE, it did not alter the relationship in any significant way. This indicates that the conceptualized relationship between these variables is still open for explanation as there may be other factors at play. Potential avenues for exploration are discussed for future research.

Limitations

There are several limitations within the current study that should be considered within future research. First, there may be limitations to the level of generalizability of the study results to other samples of populations that differ in various characteristics from the current study sample. For example, the sample in this study is depicted by a number

of risk factors (e.g., children with DD, engagement of externalizing behavior, low SES), and was recruited from a particular geographic region with participants who were from primarily White/Caucasian backgrounds. Therefore, the study results may not generalize to children who are from typically developing backgrounds, or do not engage in externalizing behavior, or are from families with fewer incidences of risk factors, and/or are from diverse regions and racial/ethnic backgrounds.

Another limitation is the short timespan between the study time points. While longitudinal, T1 and T2 occurred across only 9-10 months, which may be relatively too short to truly depict individual change in the stable constructs that were examined in this study, such as the level of optimism and/or child problem behavior. Future research should consider investigating similar study constructs across a longer period of time, such as multiple years, that can more accurately capture the associated relationships between the variables of interest. Finally, the level of severity of child externalizing behavior should also be noted. While all children included in the current sample exhibited varying levels of externalizing behavior, the severity of these behaviors did not exceed into clinical ranges. Thus, the extent to which the study results can be applied to other samples of children who may engage in higher levels of externalizing behavior should be further considered and examined.

Other limitations may be related to the analytic approaches and procedures utilized in this study. It should be noted that correlational analysis relies on theoretical inferences that are based on arguments about the causality among the interested variables. The examined cross-sectional data represents only one moment in time, thus there is no way to determine if these causality inferences are truly correct. Another limitation relates

to the reduced sample size for the moderation analysis given that optimism was not measured in the full sample. This measure was added during the third recruitment cohort. Thus, the moderation effect was investigated with a smaller sample ($n = 116$), which may have impacted the true level of effect that could have been captured with a larger number of parents. Finally, PSE was narrowly conceptualized for the purposes of this study. PSE is a construct that can be measured on a global scale, as well as across specific task domains that are setting or behavior based (Sanders & Woolley, 2005). As the current study aimed to explore PSE among parents in their management of specific child behavioral challenges (e.g., child EB), behavior-specific PSE was measured. Thus, the results of the study are limited in their interpretation and applicability within the context of looking at behavior-specific PSE among parents of children with DD.

Future Directions

There are several variables to consider for future research in the examination of task related PSE for parents of children with DD. As noted in the limitations, the longitudinal context of this study occurred within a timeframe of 9-10 months. Researchers should assess current study constructs within a longer timeframe as it could account for the variance that may be present during a longer developmental period outside of those captured within this study.

Future research should also consider exploring other potential mediators of child EB and task related PSE to further clarify the nature of the relationship between these two variables and to identify any possible underlying processes and mechanisms. With the current study identifying child EB having a strong inverse association with task related PSE, it would be important to extend this finding to see if and how other external

variables can provide an explanation about the dynamics of this relationship when it is considered within the context of time.

A possible avenue to examine would be parenting behaviors that relate to the use of behavior management strategies, such as effective limit setting, monitoring, and positive parenting skills. A study by Teti and Gelfand (1991) demonstrated positive associations between effective parenting behavior with maternal PSE, independent of the effects of other explored variables (e.g., marital support, child temperament). It would be important to see how such findings would generalize to parents of children with DD, particularly among those of children who engage in externalizing problem behavior. Specifically looking at how parenting behavior may mediate the relationship between child EB and task related PSE. Looking at this relationship could provide an explanation for how task related PSE translates to parenting behavior that impacts the level of child EB. Similarly, it could also provide an explanation regarding the use of effective parenting skills that impacts the level of child EB, which then ultimately influences one's PSE. Understanding such potential associations would be critical for this population.

Tying into this discussion is the topic of parent mental health. Studies have demonstrated the role of PSE in associations with parent behavior and parent mental health (Anderson, 2006; Baker et al., 2002; Hastings & Brown, 2002; Hastings et al., 2005). Knowing that mental health factors (e.g., depression, anxiety) are often observed within parents of children with DD, it would be important for future research to further explore this in the context of the how parent mental health may impact the relationship between child EB and task related PSE.

Another possible mediating mechanism to explore is parental emotion regulation. This construct may be applicable to parents of children with DD in their ability to regulate their emotions during challenging times when their child is engaging in problem behavior. Thus, their emotion regulation skills may dictate their affect towards a frustrating event, which in turn could influence the way they perceive their own ability and efficacy to handle it. Findings from such associations could inform intervention practices that can target cognitive changes to improve parent emotion regulation, which can have downstream effects on child EB.

Based on the discussion thus far, it would be important to identify which psychosocial factors impact one's PSE within the context of managing child EB. This aim would be even more critical to consider on a longitudinal basis as these children age. Furthermore, it is important to explore how these factors may function within the associations of interest so that future parent intervention work may be extended to highlight the importance of PSE among parents of children with DD.

Conclusion

This current study found a strong, inverse relation between task related PSE and child EB among parents of children with DD. Consistent with the social cognitive theory (Bandura, 1997), this finding indicated that as parents felt more efficacious about their abilities to manage their children's problem behavior, the less problem behavior there was. This association was further explored across a longitudinal context, which indicated that task related PSE was inversely associated with child EB post 9 months. However, child EB and task related PSE that was measured after 9 months did not demonstrate any significant associations. This highlights the need to further explore what other factors are

at play in driving the difference between these two influential pathways across time. This finding was further supported by the absence of any moderation of optimism on child EB and task related PSE. Several important clinical implications were derived from these findings related to the understanding of task related PSE among parents of children with DD. Further research is needed to identify other pertinent factors that impact the level of PSE within the context of addressing child EB among this population of families. Limitations notwithstanding, this study makes an important contribution to the parenting self-efficacy literature in families of children with DD.

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