Structural Model of Child Routines and Self-Regulation in Relation to Parenting and Externalizing Behavior Problems in Young Children

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STRUCTURAL MODEL OF CHILD ROUTINES AND SELF-REGULATION IN RELATION TO PARENTING AND EXTERNALIZING BEHAVIOR PROBLEMS IN YOUNG CHILDREN

by

Lovina Rose Bater

A Dissertation
Submitted to the Graduate School,
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for the Degree of Doctor of Philosophy

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December 2018
ABSTRACT

STRUCTURAL MODEL OF CHILD ROUTINES AND SELF-REGULATION IN RELATION TO PARENTING AND EXTERNALIZING BEHAVIOR PROBLEMS IN YOUNG CHILDREN

by Lovina Rose Bater

December 2018

The relationship between parenting practices and externalizing behavior problems in preschool children is well established; however, the mechanisms that explain this relationship are less understood. It is suggested that the structure and predictability created by child routines allow children the opportunity to become aware of and learn to regulate their behaviors accordingly, yet only a couple of studies have examined this relationship. Therefore, this study examined competing models (i.e., direct, indirect, and serial mediation models) to help determine which model captures the relationship between the variables of interest. It was hypothesized that each model would have good model fit but that the serial mediation model with child routines and self-regulation as serial mediators would be the model with the best fit.

A sample of 160 maternal caregivers of preschool age children completed questionnaires measuring parenting practices, child routines, child self-regulation, and child externalizing behavior problems. A series of Confirmatory Factor Analyses (CFA) were conducted to determine how well the observed measures operationalize the proposed latent variables. Structural equation modeling (SEM) was then used to determine what structural pathway best represents how the variables of interest relate to one another.
The CFAs and subsequent SEMs had mediocre to poor model fit and failed to support the serial model as the best fit. Rather, the Bayesian Information Criterion (BIC) suggested that the indirect effect model with self-regulation as the mediator between the three independent variables and the externalizing behavior problem latent variable had the best fit. All models supported self-regulation as a mediator of negative parenting and externalizing behavior problems, and child routines as a mediator of positive parenting and self-regulation. These findings suggest that these relationships are stronger within their respective parenting practice contexts (i.e., negative or positive), and a serial mediation relationship may not be supported. However, these results are reflective of a community, non-clinical sample where few externalizing behavior problems were reported. Limitations and future directions are discussed.
ACKNOWLEDGMENTS

I would first like to acknowledge my supervisor, Dr. Sara Jordan. This project was challenging for so many reasons and I couldn’t have completed this almost impossible task without your support and encouragement. I wholeheartedly appreciate everything you’ve done for me! I would also like to thank Laura Hansen for doing a wonderful job managing the data collection for this project in Mississippi, while I was across the country completing my internship. The amount of time and effort you put into helping me with this project will forever be appreciated. You are an amazing friend and peer! I would also like to thank the other graduate and undergraduate students in the USM Child Routine and Behavior Lab for their assistance with the data collection process. Your time and effort are also greatly appreciated! Another person I would like to extend my gratitude to is Dr. Steve Cisneros for all your assistance with learning these new statistical procedures. Lastly, I would like to thank Dr. Nora Charles, Dr. Stephanie Smith, and Dr. Bonnie Nicholson for their willingness to be on my dissertation committee. Not only do I appreciate the time and feedback provided by each one of you, I also appreciate the flexibility and support provided throughout this challenging process.
DEDICATION

I dedicate my dissertation and the completion of my doctoral program to the memory of my mother. Throughout my life, no one has provided me with a better example of what a strong, unrelenting, and earnest work ethic should look like. That the only way to truly enjoy all that you have is to earn it yourself. You also taught me that it is extremely important to have fun and enjoy yourself, because life is far too short. I fondly remember the road trip we took together to Hattiesburg, Mississippi, in a rental red mustang for my graduate school interview. You came with me and drove the entire trip just to make sure I was safe given my back-to-back interviews; modeling, yet again, the perfect balance of devotion to those you love while still preserving life’s excitement even during stressful times. Thank you for all your support during my journey and for helping me become the person I am today – I truly could not have done it without you. You are forever loved and forever missed.

I also dedicate this work to my best friend and brother, Zachary Bater. He and my two nieces are what have kept me afloat throughout this process. I could not be more thankful to have them in my life and I love them more than words can say. Lastly, I would like to thank all of my friends and family members. It is during the most challenging times of our lives that we get to see the true colors of those who say they care about us and I have never been more humbled and thankful for the people I have in my life. You all are incredible and have a special place in my heart for all the love and encouragement you have provided me throughout this journey.
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<tbody>
<tr>
<td>ACC</td>
<td>Anterior cingulate cortex</td>
</tr>
<tr>
<td>ADHD</td>
<td>Attention-Deficit/Hyperactivity Disorder</td>
</tr>
<tr>
<td>AIC</td>
<td>Akaike information criterion</td>
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<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
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<td>APQ-PR</td>
<td>Alabama Parenting Questionnaire-Preschool Revision</td>
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<tr>
<td>BIC</td>
<td>Bayesian information criterion</td>
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<tr>
<td>CBQ-SF</td>
<td>Children’s Behavior Questionnaire-Short Form</td>
</tr>
<tr>
<td>CEC</td>
<td>Cool Executive Control</td>
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<tr>
<td>CFA</td>
<td>Confirmatory Factor Analysis</td>
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<td>CFI</td>
<td>Comparative Fit Index</td>
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<tr>
<td>CRQ-P</td>
<td>Child Routines Questionnaire-Preschool</td>
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<td>EBP</td>
<td>Externalizing Behavior Problems</td>
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<td>ECBI</td>
<td>Eyberg Child Behavior Inventory</td>
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<tr>
<td>HEC</td>
<td>Hot Executive Control</td>
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<tr>
<td>HTKS</td>
<td>Head-Toes-Knees-Shoulders</td>
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<td>IRB</td>
<td>Institutional Review Board</td>
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<td>M</td>
<td>Mean</td>
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<tr>
<td>Mturk</td>
<td>Amazon Mechanical Turk</td>
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<tr>
<td>PBI</td>
<td>Parent Behavior Inventory</td>
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<tr>
<td>PEP</td>
<td>Prevention program for preschool children with Externalizing Problem Behaviors</td>
</tr>
<tr>
<td>PFC</td>
<td>Prefrontal Cortex</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>PSRA</td>
<td>Preschool Self-Regulation Assessment</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Root-Mean-Square Error of Approximation</td>
</tr>
<tr>
<td>SD</td>
<td>Standard Deviation</td>
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<td>SEM</td>
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CHAPTER I – STRUCTURAL MODEL OF CHILD ROUTINES AND SELF-REGULATION IN RELATION TO PARENTING AND EXTERNALIZING BEHAVIOR PROBLEMS IN YOUNG CHILDREN

Externalizing behavior problems (EBP) include demonstrating disruptive behaviors such as noncompliance, defiance, aggression, hyperactivity, and impulse control problems (American Psychiatric Association, 2013; Shapiro, 2015). It is reported that these difficulties often develop in young childhood and lead to a host of negative outcomes with negative trajectories such as difficulties with interpersonal interactions, learning and academic difficulties, and comorbidities with other diagnoses (e.g., depression, anxiety, substance use). Epidemiological studies suggest that about 15% to 20% of preschool children demonstrate EBP; whereas, data taken from teacher-reports suggest that about 25% of kindergarten children continue to have similar or worse difficulties (e.g., Graziano et al., 2015). Recently, researchers have focused on examining the paths surrounding the development, maintenance, and protective factors of EBP in order to increase the ability to identify and treat these difficulties in early childhood (i.e., Barnes, Boutwell, Beaver, & Gibson, 2013; Graziano et al., 2015).

Research has clearly established that parenting practices are associated with EBP, specifically positive parenting practices are associated with fewer EBP and negative parenting practices are associated with more EBP among children (Clerkin et al., 2007; Cprek et al., 2015; Gryczkowski, Jordan, & Mercer, 2009; Koblinsky, Kuvalanka, & Randolph, 2006; Stormshak, Bierman, McMahon, & Lengua, 2000). In fact, treatments for children with EBP under the age of 6 years often focus on changing parenting practices to reduce their disruptive behaviors (Shapiro, 2015). However, the mechanisms
through which child behaviors are impacted by parenting practices are less established. Despite the limited research that focuses specifically on child routines, child routines have mediated the relationship between parenting practices and EBP in preschool and school-age children (Bater & Jordan, 2017; Jordan, Stary, & Barry, 2013; Sytsma-Jordan & Kelley, 2004).

Furthermore, EBP involves difficulties with regulation of behaviors and emotions (American Psychiatric Association, 2013). When treating a child with EBP, self-regulation is considered one of the most important capabilities to assess (Shapiro, 2015) and has consistently been correlated with EBP (Barnes et al., 2013; Caughy, Mills, Owen, & Hurst, 2013; Eiden, Edwards, & Leonard, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Rothbart & Bates, 2006; Valiente et al., 2006; Vazsonyi & Huang, 2010). Although it is generally accepted that there is a genetic component to self-regulation (i.e., temperament), both positive and negative parenting practices have also demonstrated relations with self-regulatory development (Bater & Jordan, 2017; Baumeister, Schmeichel, & Vohs, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Kochanska, Coy, & Murray, 2001; von Suchodoletz, Trommsdorff, & Heikamp, 2011). Studies have also shown that self-regulation mediates the relationship between parenting practices and EBP (Bater & Jordan, 2017; Eisenberg et al., 2005; Valiente et al., 2006).

Child routines have also often been theorized to assist and promote the development of self-regulation in young children, but this relationship has not been well established (Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; Perry, 2005; Taylor, 2011). Of the few studies that have examined this relationship, only one initial study has examined child routines and self-regulation as mediators of parenting practices and EBP.
in preschool children (Bater & Jordan, 2017). Although the preliminary serial mediation model was significant for both parenting practice models (i.e., positive [or negative] parenting practices through child routines followed by self-regulation to EBP), it has not been tested against other alternatives. Therefore, the present study aimed to further examine this conceptual model relative to competing models.

Parenting Practices

Parents clearly play a critical role in the lives of their preschool children due to the need for constant parental assistance at this young age. Although much of the early literature regarding parental involvement in children focused on overall parenting styles (i.e., authoritarian, permissive, authoritative, uninvolved/neglectful; Baumrind, 1971, 1991; Darling & Steinberg, 1993; Maccoby & Martin, 1983), much of the recent literature examines parenting practices. Parenting practices are defined as “specific, goal-directed behaviors through which parents perform their parental duties” (Darling & Steinberg, 1993, p. 488). This transition has occurred because, unlike parenting styles, parenting practices may be able to explain why or how a relationship exists to other variables because of their focus on specific parental behaviors.

The Coercive Family Process Model is an empirically derived developmental model that is consistent with the hypothesis that parenting practices have direct influences on child outcomes (Patterson, 1982; Patterson, DeBaryshe, & Ramsey, 1989). This model suggests that reduced parental involvement and monitoring and inconsistent discipline may lead to more frequent child noncompliance and aggressive behaviors, creating a problematic coercive parent-child interaction (Patterson, DeBaryshe, & Ramsey, 1989). From this model, two major categories of parenting practices have
emerged: positive and negative parenting practices (Darling & Steinberg, 1993; Patterson, DeBaryshe, & Ramsey, 1989). These parenting practices have demonstrated an association to EBP in preschool children (Bayer et al., 2008; Darling & Steinberg, 1993; Trepat, Granero, & Ezpeleta, 2014; Koblinsky, Kuvalanka, & Randolph, 2006; Hanisch et al., 2014; Maguire-Jack, Gromoske, & Berger, 2012).

Positive parenting practices typically include regular involvement with one’s child, warm parent-child interactions, and frequent praise (Darling & Steinberg, 1993). Positive parenting practices have demonstrated a negative correlation with EBP in preschool children (Clerkin et al., 2007; Cprek et al., 2015; Gryczkowski, Jordan, & Mercer, 2009; Koblinsky, Kuvalanka, & Randolph, 2006; Stormshak, Bierman, McMahon, & Lengua, 2000). In a cross-sectional study, three specific positive parenting practices (i.e., reading to children, eating meals together, engaging in storytelling/singing) and their composite, were inversely correlated with developmental, social, and behavioral delays (Cprek et al., 2015). Furthermore, a parent management therapy for German speaking families (Prevention program for preschool children with Externalizing Problem behaviors; PEP) was administered to families with preschool children: positive parenting practices mediated the relationship between receiving PEP treatment and EBP (Hanisch et al., 2014). Receiving PEP treatment was associated with more positive parenting and less behavior problems.

In contrast, poor monitoring and supervision, inconsistent discipline, and corporal punishment (or punitive parenting) are all considered to be forms of negative parenting practices (Clerkin et al., 2007; Darling & Steinberg, 1993). A longitudinal study with several assessments between seven and 36 months, showed that negative parenting
practices and parental stress were consistent predictors of EBP in early childhood (Bayer et al., 2008). Additionally, Hanisch and colleagues’ (2014) administration of PEP to families with preschool children and also found that negative parenting practices (i.e., “dysfunctional parenting”) mediated the relationship between the PEP treatment and EBP. Specifically, PEP treatment was associated with less dysfunctional parenting and less problem behaviors (Hanisch et al., 2014). With respect to corporal punishment, spanking children at one-year of age, was found to be associated with higher levels of EBP at age three (Clerkin et al., 2007); while spanking at three years old was found to be associated with higher levels of both externalizing and internalizing behaviors (Maguire-Jack, Gromoske, & Berger, 2012). Lastly, corporal punishment was shown to mediate the relationship between several forms of parental psychopathology (e.g., anxiety-depression, parents’ rule-breaking, aggressive behavior) and Oppositional Defiant Disorder in preschool children (Trepal, Granero, & Ezpeleta 2014).

These findings suggest that both positive and negative parenting practices, including corporal punishment, may be particularly important to consider when examining EBP in preschool children. However, more research on the mechanisms that underlie this relationship is needed because a further understanding may inform more, potentially stronger, therapeutic techniques for children with EBP (Kazdin, 2007).

Child Routines

Often times, researchers fail to distinguish the concepts of child routines and family routines, or focus on the impact of a lack of routines. Therefore, despite increasing research on routines, very few studies examine specifically child routines. Child routines are defined as “observable, repetitive behaviors which directly involve the child and at
least one adult acting in an interactive or supervisory role, and which occur with predictable regularity in the daily and/or weekly life of the child” (Sytsma, Kelley, & Wymer, 2001, p. 243). Arguably, the most important aspect of any routine is its consistency, and therefore, predictability. Researchers often theorize that higher quality routines have more consistencies in each of the elements that comprise the routines (e.g., location, caregiver involved, sequence, consequences of disobedience; Henderson & Jordan, 2009; Wildenger, McIntyre, Fiese, & Eckert, 2008; Wittig, 2005).

Higher quality routines have been posited to provide environmental cues to children that inform them as to how they should conduct themselves (Sytsma, Kelley, & Wymer, 2001). This may allow children to associate their behaviors to consequences, assisting with the development of coping strategies that decrease disruptive behaviors (Lanza & Drabick, 2011). Other researchers have suggested that having higher quality routines allow children to practice their expected behaviors which encourages a feeling of competence (Bronson, 2000; George & Soloman, 2008). On the other hand, researchers have also hypothesized that, when children do not have consistent or predictable routines in their daily lives, they may seek a steady environment through oppositional behaviors, despite the negative consequences (Wahler & Dumas, 1987; Wittig, 2005) which contribute to their EBP (DeMore, Adams, Wilson, & Hogan, 2005). Regardless, consistency and predictability of routines are theorized as important aspects to developing appropriate behaviors and teaching children how to manage their behaviors accordingly (Fiese, 2002; Harris et al., 2013).

Many of the studies that have examined family or child routines have measured them within school-aged samples. Child-reported family routines, examined in school-
aged minority children, were reported to attenuate the relationship between teacher-reported child hyperactivity/impulsivity and oppositional defiant disorder symptoms (Lanza & Drabick, 2011). Moreover, studies examining child routines in school-aged children with Attention-Deficit/Hyperactivity Disorder (ADHD) have shown that there is a negative association with externalizing and internalizing symptoms (Harris et al., 2013; Taylor, 2011). They also found that different types of routines showed differential relations with these outcome variables. Specifically, parental-report of less frequent household, discipline, and homework routines predicted higher externalizing behaviors; whereas, only less frequent household routines predicted higher internalizing behaviors (Harris et al., 2013).

There are many more studies examining routines (child routines or otherwise) in older children than there are in preschool children. Although the research conducted with school-age children may not necessarily be generalizable to a preschool population, the results provides a foundation from which to base future examination (Ferretti & Bub, 2014). Researchers have hypothesized that young children are aware of and motivated to participate in routine activities as a member of the family (Spagnola & Fiese, 2007). Therefore, it is important to include these young children in daily routine activities because it may allow them the opportunity to become autonomous with practice.

An examination of African-American, preschool children enrolled in a Head Start program demonstrated that children whose families engaged in more predictable family routines were more cooperative and compliant (Keltner, 1990). In another examination of preschool children attending Head Start, a negative relationship was shown for mothers’ report of family routine frequency and their preschool children’s EBP (Churchill &
Stoneman, 2004). These results showed that the strength of the relationship between family routines and preschool children’s EBP was stronger for girls’ outcome than they were for boys. The researchers posited that this was because girls are more involved in activities comprising family routines (e.g., making dinner, cleaning). This also suggests that child sex as a potential moderator should be considered for this study.

Furthermore, it has been theorized that consistent routines in young children help ease important and stressful transitions, such as the transition from preschool to kindergarten (Wildenger et al., 2008). This particular transition is considered an important milestone in a young child’s development because of the difficulty of transitioning from a play-oriented environment (preschool) to a more academically-structured setting (kindergarten). In addition, it is likely that the young child’s non-academic, daily routines will change as well. Considering the theory that higher quality routines teach children how to manage their behavior, higher quality routines may also alleviate some of the transitional stress and lessen the level of possible disruption. What’s more, successful transitions during this time have also been demonstrated to be important predictors for young children’s later social and academic development (Hamre & Pianta, 2001; Wildenger et al., 2008). Taken together, this body of work supports the need to study routines in preschoolers, and to further examine relations among routines and other important variables (e.g., parenting practices, EBP).

Routine and Parenting Practices

In recent years, researchers have suggested that higher quality child routines are an extension of positive parenting practices (Koblinsky, Kuvalanka, & Randolph, 2006; Prine, 2012; Wittig, 2005). Studies examining this relationship in preschool and school-
age children have demonstrated that, not only are child routines positively related to positive parenting practices and negatively related to negative parenting practices, but that child routines are a mediator through which parenting practices relate to EBP (Bater & Jordan, 2017; Jordan, 2003; Jordan, Stary, & Barry, 2013; Sytsma-Jordan & Kelley, 2004). In a study examining school-aged children, child routines accounted for more variance in EBP than the child’s demographic characteristics or the reported positive parenting practices (Sytsma-Jordan & Kelley, 2004). This suggests that child routines are an important variable to consider above and beyond positive parenting practices. Lastly, children are reported by their maternal caregiver as having greater social skills and exhibiting more self-control and cooperation when their maternal caregiver reported higher levels of family routines along with positive parenting (Koblinsky, Kuvalanka, & Randolph, 2006).

Overall, the research suggests that child routines are an important variable to study, specifically in preschool children (Bater & Jordan, 2017; Churchill & Stoneman, 2004; Keltner, 1990; Spagnola & Fiese, 2007; Wildenger et al., 2008). Parenting practices and EBP have also shown to be important when considering child routines (Churchill & Stoneman, 2004; DeMore et al., 2005; Harris et al., 2013; Lanza & Drabick, 2011; Taylor, 2011). Lastly, quality child routines may also allow children to better develop their ability to self-regulate their behaviors and emotions (Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; Perry, 2005); however, this relationship requires much more extensive examination given the current lack of research and the implications for potential therapeutic interventions.
Self-Regulation

Self-regulation is a well-known, broad concept consisting of several skills/processes (e.g., planning, modulating arousal, working memory) that are important for optimal behavioral, social, emotional, and academic functioning in children (Baumeister & Vohs, 2004; Ponitz, McClelland, Matthews, & Morrison, 2009; Graziano et al., 2015). However, the concept and terminology used to measure self-regulation largely depends on the target discipline and theoretical perspective (McClelland & Cameron, 2012; McClelland et al., 2014). Of specific interest to this study is behavioral self-regulation. Behavioral self-regulation is defined as “the manifestation of executive function skills in overt, observable responses in the form of children’s gross motor actions… including attentional focusing, working memory, and inhibitory control” (Ponitz et al., 2009, p. 605; McClelland et al., 2014). Although executive functioning is often examined as solely a cognitive development, recent research has posited that executive functioning is a “top-down cognitive process that enables the self-regulation of a more automatic, bottom-up set of processes” (McClelland et al., 2014, p. 10). For example, children must utilize working memory to keep track of and operate around numerous rules and instructions while inhibiting initial impulses and activating subdominant responses in accordance to those rules, thus influencing their overt behaviors. Notably, the conceptualization and measurement of behavioral regulation, as well as executive functioning, have repeatedly been described as consisting of “clutter” and “mayhem” (see McClelland et al., 2014); however, due to the strong support that both concepts consist of overlapping neurological skills (Bassett, Denham, Wyatt, & Warren-Knot, 2012), and the development of a psychometrically sound performance-
based assessment task that is sensitive to both concepts (i.e., Head-Toes-Knees-Shoulders), it is important to consider this concept when measuring self-regulation even when attempting to solely assess behaviors (Graziano et al., 2015; McClelland et al., 2014).

Other researchers have emphasized the importance of conceptualizing self-regulation as forming two components: cool and hot regulatory processing systems (Bassett et al., 2012; Eisenberg, Spinrad, & Eggum, 2010; Mischel & Ayduk, 2004; Razza, Bergen-Cico, & Raymond, 2013; Willoughby, Kupersmidt, Voegler-Lee, & Bryant, 2011). Both processing systems have been demonstrated by neural imaging and empirical examination to be differentiated neurologically and behaviorally despite considerable overlap, including the prefrontal cortex (PFC) as well as other commonalities. The cool regulatory processing system is reported to be rooted in the anterior cingulate cortex (ACC) and enables children to perform cognitive processes to non-affective and novel situations, such as organization, flexible thinking, and goal-directed thinking (e.g., Bassett et al., 2012). It is often thought of as a multidimensional, “top-down” cognitive construct involving control over one’s attention, cognition, and behavioral tendencies to problem solve complex, emotionally neutral situations (McClelland et al., 2014; see Zhou, Chen, & Main, 2012).

On the other hand, the hot regulatory processing system is reported to be rooted in the orbitofrontal cortex, posterior ACC, and the limbic system, (Bassett et al., 2012; Rothbart & Bates, 2006; Willoughby et al., 2011). The hot regulatory process includes the ability to regulate anger, shift attention, and control inhibitions and impulses under emotionally-driven circumstances. This process has also been defined as effortful control
Effortful control is an aspect of temperament that is associated with self-regulation and is defined as “the efficiency of executive attention, including the ability to inhibit a dominant response, to active a subdominant response, to plan, and to detect errors” (Rothbart & Bates, 2006, p. 129).

Although there are distinct differences between the cool and hot processing systems (i.e., emotional versus emotionally neutral stimuli), it appears as though the similarities surpass the differences (Zhou, Chen, & Main, 2012). Specifically, both processing systems share common components (i.e., inhibition), common processes (i.e., executive attention), common resources (i.e., directed attention), and emphasize self-control consistent with the broad definition of self-regulation. Zhou and colleagues (2012) reviewed several studies that demonstrated small to moderate relations between different components of the processing systems, providing empirical support for overlap between the constructs (Zhou, Chen, & Main, 2012). Researchers state that examining self-regulation as two separate but complementary components guards against oversimplification about the mechanisms involved in their respective actions, but emphasized that it is important to consider both when considering self-regulation (Bassett et al., 2012; Eisenberg, Spinrad, & Eggum, 2010; Razza, Bergen-Cico, & Raymond, 2013; Willoughby et al., 2011; Zhou, Chen, & Main, 2012). Therefore, due to having an assessment tool that is sensitive to both these components (i.e., Preschool Self-Regulation Assessment), both hot and cool regulatory processing systems were examined in this study.

Nevertheless, self-regulation is an important variable to consider due to its implications for children’s emotional, behavioral, social, and academic functioning.
Examining self-regulation in young children specifically, has proven to be particularly important because of the dramatic neurological and behavioral development that occurs between the first five-years of life (Bassett et al., 2012; Eisenberg et al., 2005; Kochanska, Aksan, & Carlson, 2005; Rothbart & Bates, 2006).

**Self-Regulation and Parenting Practices**

Primary caregivers play an important role in the development of young children’s internalization of self-regulatory abilities. Not only are children maturing on their own, parents are supposed to provide them with the support, direction, and environments for appropriate self-regulatory development (Bronson, 2000; Calkin, 2007; Kopp & Neufled, 2003; Taylor, 2011). As mentioned, although some aspects of self-regulation are considered to have a genetic basis rooted in temperament (i.e., effortful control), studies have demonstrated that positive parenting practices (e.g., sensitivity, responsiveness, warmth) are positively related to developmentally-appropriate self-regulatory abilities; whereas, negative parenting practices (e.g., assertive discipline, harsh punishment, controlling) are negatively related (Baumeister, Schmeichel, & Vohs, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Kochanska, Murray, & Harlan, 2000; von Suchodoletz, Trommsdorff, & Heikamp, 2011).

It has been hypothesized that parenting practices have an impact on a child’s self-regulatory development because activities involved in parenting practices model behavior to children as well as scaffold their self-regulatory development during daily activities (Florez, 2011). Disruptions in a child’s self-regulatory development, such as a low
frequency of positive parenting practices or a high frequency of negative parenting practices, have been shown to be related to EBP (Barnes et al., 2013; Caughy et al., 2013; Eiden, Edwards, & Leonard, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Valiente et al., 2006; Vazsonyi & Huang, 2010). In fact, research has found that a disproportionate number of preschool children with at-risk or clinical levels of EBP demonstrate deficits in their self-regulatory abilities (see Graziano et al., 2015; Rothbart & Bates, 2006). Furthermore, inappropriate development of self-regulatory abilities has often been cited as a common etiological factor when examining maladjustment and psychopathology (e.g., Hill-Soderlaund & Braungart-Rieker, 2007) and is often the target of many therapies for disruptive behavior disorders (Shapiro, 2015; Zhou, Chen, & Main, 2012).

Although the relationship between self-regulation and EBP is heavily debated, the most common theory is that parenting practices predict self-regulatory development which influence the development of EBP (Barnes et al., 2013; Eisenberg et al., 2005; Vazsonyi & Huang, 2010). Several studies have examined this link longitudinally across a wide range of ages (4.5 years to 13.4 years) and self-regulation was shown to mediate the relationship between parenting and EBP (Eisenberg et al., 2005; Valiente et al., 2006; Vazsonyi & Huang, 2010). Moreover, effortful control was found to be a mechanism through which maternal warmth and expressiveness was related to EBP (Eisenberg et al., 2005; Valiente et al., 2006). Therefore, given the established relationships, it is important to further examine self-regulation’s role as a mediating variable, in conjunction with other empirically supported mediating variables, such as child routines, in the relationship between parenting practices and EBP.
Relationship between Child Routines and Self-Regulation

Across many modalities, it has been posited that routines promote self-regulation in children. As we can see from the literature above, children with higher self-regulatory skills tend to engage in less EBP and often have a host of other positive outcomes (Barnes et al., 2013; Baumeister & Vohs, 2004; Ponitz et al., 2009; Eisenberg et al., 2005; Graziano et al., 2015; Rothbart & Bates, 2006; Valiente et al., 2006; Vazsonyi & Huang, 2010). Researchers have theorized that the structure and predictability that make up an appropriate routine allow children to develop internal structures that enable them to be aware of and regulate their thoughts, emotions, and behaviors accordingly (Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; Perry, 2005; Taylor, 2011). Other researchers have suggested that it is due to lawfulness being modeled, allowing children the ability to predict the sequence of routines and the consequences and rewards that follow routine compliance (Martin, Razza, & Brooks-Gunn, 2012). Finally, it has been asserted that engaging in consistent, routine activities can provide self-regulatory skills that, not only scaffold their self-regulatory abilities, but also strengthen those skills through practice (Barber & Munz, 2011; McCullough & Willoughby, 2009). In summation, it is hypothesized that through structured, routine environments, children learn to persist with unenjoyable activities and/or resist the urge to misbehave because they know that the unenjoyable activity will soon end, thereby increasing their self-regulatory abilities. Routine activities can also become more habitual and/or the children’s ability/skill for completing that routine increases, requiring less self-regulatory resources which allow children to use their remaining resources elsewhere, such as managing their behavior.
Despite the many theoretical explanations that attempt to explain why routines may be related to and even assist a child’s self-regulatory skills, very few studies have provided empirical evidence of this specific relationship (Bater & Jordan, 2017; Taylor, 2011). However, several researchers have examined similar relationships with a somewhat different conceptualization of routines. Martin and colleagues (2012) focused on household chaos with a specific focus on a lack of family routines. In this longitudinal prospective study, a lack of routines in a toddler’s family life (greater household chaos) was associated with a weaker ability to delay gratification on a laboratory measure of self-regulation two and a half years later (Martin, Razza, & Brooks-Gunn, 2012). Thus, lacking routines at a mean age of 2 years 6 months related to a lower ability to delay gratification at age 5, even after controlling for the other variables that comprised household chaos. The relationship was not mediated by maternal warmth or learning materials in the home.

Furthermore, Ferretti and Bub (2014) examined a similar relationship but with family routines in low-income families which, as they stated, were “measured relatively coarsely” (p. 171). The researchers assessed family routines by longitudinally observing five family routine variables (i.e., parent-child play, parent-child outside activities, bedtime routines, regular bedtime, reading routine). Although children with higher levels of routines observed at 14 months had better self-regulation at 36 months, the relationship was no longer significant once family routines at 36 months were taken into account. This suggests that, despite children as young as 14 months benefitting from routines, concurrent routines observed at 36 months explained more of the variance in the child’s self-regulatory abilities.
As mentioned, only two known studies have examined the relationship between child routines and child self-regulation. Taylor (2011) examined child routines directly via coding of routine classroom activities. The study examined the relationship between child self-regulation and routines in the context of the child’s classroom. This study examined 21 children between six and 60 months of age. As the children engaged in their daily activities in their respective classrooms, they were videotaped three times over six months. These tapes were coded by trained observers for children’s self-regulatory behaviors and structure of the classroom’s daily routine. The results revealed that the children whose daily routines were more structured engaged in more self-regulated behaviors over time within the classroom setting. Results demonstrated that those who had more structured routines exhibited more internal self-regulatory behaviors (i.e., complied to rules and regulation without their teacher’s directive) and demonstrated less defiance of a teacher’s directive past 10-seconds. The researcher posited that more structured routines provided children with cues that assisted their ability to self-regulate their behaviors.

Bater and Jordan (2017) also specifically examined child routines and its relationship to self-regulation. This study tested a serial mediation model of parenting practices (positive and negative separately) through child routines followed by child self-regulation in predicting EBP among preschool children. Self- and parent-report questionnaires were completed by 146 female caregivers of preschool children between the ages of three and five in a racially and socioeconomically diverse community sample. First, three simple mediation models were tested in PROCESS (Hayes, 2013). Self-regulation was examined as a mechanism through which child routines related to EBP.
Both indirect and direct effects were supported (i.e., more frequent child routines were associated with more self-regulation and fewer EBP). Similarly, child routines were examined as a mechanism through which positive parenting practices related to self-regulation, and both indirect and direct effects were supported. Positive parenting had a positive relation with child routines, which in turn, had a positive relation with self-regulation. However, when child routines were examined as a mechanism through which negative parenting practices related to self-regulation, only the indirect effect was supported. In this model, more negative parenting practices were associated with fewer child routines, which in turn, were associated with less self-regulation.

Serial mediation models examined child routines and self-regulation abilities as serial mediators of the relation between parenting practices (i.e., positive and negative) and child EBP, after controlling child race and gender (Bater & Jordan, 2017). Positive and negative parenting practices were examined in separate models and both models were supported. However, the negative parenting practice model was no longer significant once the mediators were reversed (self-regulation placed before child routines) and when the mediators were considered independently, controlling for the other mediator. This suggests that child routines may play a critical role in preschoolers’ self-regulatory development and are associated with fewer EBP. It also suggests that child routines may be a mechanism through which negative parenting practices relate to the development of the preschoolers’ self-regulation and EBP. A possible explanation is that less punitive disciplinary practices promote more frequent routines, and that the structure and predictability routines provide assist with development of internal self-regulation (Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; Perry, 2005). Notably, when
examining the positive parenting practice model as such, support was maintained despite
the reversal of the mediators and when the mediators were considered independently
while controlling for the other mediator (Bater & Jordan, 2017).

Bater and Jordan’s (2017) study provides preliminary examination of the
relationship between child routines and self-regulation, along with their roles as serial
mediators in the relationship between parenting practices and EBP. However, this study
did not consider alternative, simpler models prior to testing the more complex serial
mediation model and did not use model fit indices to examine how well this model fit the
data.

Current Study

The literature demonstrates that parenting practices are related to EBP in
preschool children (Bayer et al., 2008; Darling & Steinberg, 1993; Trepat, Granero, &
Ezpeleta, 2014; Hanisch et al., 2014; Koblinsky, Kuvalanka, & Randolph, 2006;
Maguire-Jack, Gromoske, & Berger, 2012; Shapiro, 2015) but the mechanisms through
which this relationship exists need to be further examined to fully understand the
relationship between parenting practices and EBP and to potentially inform therapeutic
interventions for early EBP. This is particularly important in preschool populations
because of the high prevalence of behavior problems reported (e.g., Graziano et al., 2015)
and the need for early intervention to assess and treat these EBP (i.e., Barnes et al., 2013;
Graziano et al., 2015). Although more frequently studied in school-aged children, child
routines have also demonstrated a relationship with both positive and negative parenting
practices (Bater & Jordan, 2017; Jordan, 2003) and EBP (Bater & Jordan, 2017; Harris et
al., 2013; Taylor, 2011). Few empirical studies have been conducted to support the theory
that child routines in preschool children are impacted by parenting practices and influence externalizing behaviors, suggesting the need for further examination, particularly in young children (Bater & Jordan, 2017; Churchill & Stoneman, 2004; DeMore et al., 2005; Harris et al., 2013; Lanza & Drabick, 2011; Sytsma-Jordan & Kelley, 2004; Taylor, 2011).

Behavioral self-regulation is another important variable to examine when considering the relationship between parenting practices and EBP in preschool children. Studies have supported direct relationships among behavioral self-regulation and these constructs, as well as an indirect effect of parenting practices to EBP through self-regulation (Barnes et al., 2013; Caughy et al., 2013; Eiden, Edwards, & Leonard, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Valiente et al., 2006; Vazsonyi & Huang, 2010). Many researchers have hypothesized that self-regulation is promoted by consistent daily routines but few have provided empirical support of this relationship (Barber & Munz, 2011; Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; McCullough & Willoughby, 2009; Perry, 2005; Wittig, 2005). Even fewer researchers have examined this relationship conceptualizing routines as solely child routines instead of family routines.

Taylor (2011) examined the relationship between classroom child routines and self-regulation and found that those who had more structured classrooms exhibited more internal self-regulatory behaviors and less defiance. More specific to the current study, Bater and Jordan (2017) examined child routines and self-regulation in relation to parenting practices (negative and positive, respectively) and EBP. Independent indirect effect models demonstrated significant indirect effects for self-regulation as a mechanism
through which child routines related to EBP and child routines as a mechanism through which negative and positive parenting practices related to EBP, respectively. Finally, serial mediation models examining child routines and self-regulation as serial mediators in the relationship between positive and negative parenting practices, respectively, and EBP in preschool children were supported (Bater & Jordan, 2017). The present study aims to further validate that same conceptual model while comparing alternative models using more sophisticated analyses that allows for more flexible examination of the model.

Focusing on Bater and Jordan’s (2017) significant relationships, a similar model examining child routines and self-regulation as serial mediators through which parenting practices (positive and negative) relate to EBP was compared to a direct effect model (examining positive parenting practices, negative parenting practices, child routines, and self-regulation as direct predictors of EBP) and an indirect effect model (self-regulation acting as a mechanism through which child routines, positive parenting practices, and negative parenting practices relate to EBP). The direct and indirect relationships hypothesized in each of these models have been demonstrated in isolation in the literature, but not in the specific variable combinations and paths proposed here. Also, no known study has examined the three models and directly compared them to one another to identify which proposed model best fits the data. Based on the theory that child routines and self-regulation are temporal mechanisms through which positive and negative parenting practices relate to EBP, the theory that child routines assist in the development of an internalized self-regulation, as well as supporting evidence provided by past research (Bater & Jordan, 2017; Taylor, 2011), it was hypothesized that the serial
mediation model would outperform the direct and indirect models. These findings may offer additional evidence to support the validity of the serial mediation model put forth by Bater and Jordan (2017) or suggest a more parsimonious alternative model.
CHAPTER II - METHODS

Participants

Eligibility for this study required the mother to be at least 18-years old with a child between the ages of three to five who was enrolled in a daycare or preschool in the United States. Children reported to be diagnosed with an autism spectrum disorder, intellectual disability, or a global development delay were excluded from the study, given that the aim of the study was to examine typically developing children. Two methods of recruitment were used for the purpose of this study: local preschools and Amazon Mechanical Turk (MTurk; a crowdsourcing Internet marketplace that enables any individual to participate in online studies). Mothers obtained through preschools were compensated with a $10 gift card to Wal-Mart. Mothers obtained through MTurk were compensated with $4.70 through MTurk’s website. Compensation changed due to differences in accepted standards for this recruitment mechanism and is based on a rate of $7.00/hr (Williamson, 2016).

One participant was removed because she did not consent to the study despite completing the questionnaire, 7 because the maternal caregivers did not indicate that they were the legal guardian of the target child, and 7 because they did not respond to questions about exclusionary criteria such as parent age and whether their child has been diagnosed with Autism Spectrum Disorder or Intellectual Disability Disorder. A total of 15 mothers were removed from this data set during data screening.

For this study, information was obtained from 160 female parents/legal guardians, heretofore referred to as mothers: 64 participants were recruited from daycares and preschools in Mississippi, Louisiana, and California and 96 were recruited from MTurk.
Children reported on were mostly white and female (64.4% and 53.1%, respectively; see Table 1). Two observations worth noting are the clear gender difference across recruitment method warranted using child sex as a covariate as well as the added diversity (i.e., race/ethnicity and income) brought to the study through MTurk’s recruitment method. These children were mostly 3 or 4 years old (44.4% and 39.4%, respectively).

The sample consisted of primarily biological mothers (93.1%; see Table 2). Reportedly, the paternal co-parents were primarily biological fathers (76.3%), with 19.4% not reporting a paternal co-parent (see Table 3). Both parents were likely to have attended some standard college or graduated from a university (41.3% and 28.1%, respectively). The children were most likely to come from married, co-parenting households (70.6% and 80%) and 48.8% indicated that they were in the $60,000 and above income bracket (see Table 4).

Table 1 Descriptive Characteristic of Children by Recruitment Method

<table>
<thead>
<tr>
<th>Child Characteristic</th>
<th>Preschools n (%)</th>
<th>MTurk n (%)</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>41 (64.1)</td>
<td>34 (35.4)</td>
<td>75 (46.9)</td>
</tr>
<tr>
<td>Female</td>
<td>23 (35.9)</td>
<td>62 (64.6)</td>
<td>85 (53.1)</td>
</tr>
<tr>
<td><strong>Child Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>34 (53.1)</td>
<td>37 (38.5)</td>
<td>71 (44.4)</td>
</tr>
<tr>
<td>4</td>
<td>24 (37.5)</td>
<td>39 (40.6)</td>
<td>63 (39.4)</td>
</tr>
<tr>
<td>5</td>
<td>6 (9.4)</td>
<td>20 (20.8)</td>
<td>26 (16.3)</td>
</tr>
<tr>
<td><strong>Child Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alaska Native</td>
<td>1 (1.6)</td>
<td>3 (3.1)</td>
<td>4 (2.5)</td>
</tr>
<tr>
<td>Asian</td>
<td>2 (3.1)</td>
<td>14 (14.6)</td>
<td>16 (10)</td>
</tr>
<tr>
<td>Black</td>
<td>11 (17.2)</td>
<td>9 (9.4)</td>
<td>20 (12.5)</td>
</tr>
<tr>
<td>White</td>
<td>45 (70.3)</td>
<td>58 (60.4)</td>
<td>103 (64.4)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>4 (6.3)</td>
<td>11 (11.5)</td>
<td>15 (9.4)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (1.6)</td>
<td>1 (1)</td>
<td>2 (1.3)</td>
</tr>
</tbody>
</table>

*Note. 64 participants were recruited through a preschool and 96 participants were recruited online through Amazon’s MTurk.*
Table 2 *Descriptive Characteristics of Maternal Caregivers by Recruitment Method*

<table>
<thead>
<tr>
<th>Maternal Caregiver Characteristic</th>
<th>Preschools n (%)</th>
<th>MTurk n (%)</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relation to Child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological mother</td>
<td>60 (93.8)</td>
<td>89 (92.7)</td>
<td>149 (93.1)</td>
</tr>
<tr>
<td>Adoptive mother</td>
<td>1 (1.6)</td>
<td>0 (0)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Step-mother</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Legal guardian (e.g., foster mother)</td>
<td>2 (3.1)</td>
<td>6 (6.3)</td>
<td>8 (5.0)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (1.6)</td>
<td>0 (0)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some High School</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>High School Grad</td>
<td>4 (6.3)</td>
<td>10 (10.4)</td>
<td>14 (8.8)</td>
</tr>
<tr>
<td>Some college or specialized training</td>
<td>10 (15.6)</td>
<td>32 (33.3)</td>
<td>42 (26.3)</td>
</tr>
<tr>
<td>Standard college or University Grad</td>
<td>29 (45.3)</td>
<td>37 (38.5)</td>
<td>66 (41.3)</td>
</tr>
<tr>
<td>Graduate professional degree</td>
<td>19 (29.7)</td>
<td>15 (15.6)</td>
<td>34 (21.3)</td>
</tr>
<tr>
<td>No response</td>
<td>2 (3.1)</td>
<td>1 (1)</td>
<td>3 (1.9)</td>
</tr>
</tbody>
</table>

Note. 64 participants were recruited through a preschool and 96 participants were recruited online through Amazon’s MTurk.

Table 3 *Descriptive Characteristics of Paternal Caregivers by Recruitment Method*

<table>
<thead>
<tr>
<th>Paternal Caregiver Characteristic</th>
<th>Preschool n (%)</th>
<th>MTurk n (%)</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relation to Child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biological father</td>
<td>54 (84.4)</td>
<td>68 (70.8)</td>
<td>122 (76.3%)</td>
</tr>
<tr>
<td>Adoptive father</td>
<td>1 (1.6)</td>
<td>0 (0)</td>
<td>1 (0.6%)</td>
</tr>
<tr>
<td>Step-father</td>
<td>3 (4.7)</td>
<td>2 (2.1)</td>
<td>5 (3.1%)</td>
</tr>
<tr>
<td>Legal guardian (e.g., foster father)</td>
<td>1 (1.6)</td>
<td>0 (0)</td>
<td>1 (0.6%)</td>
</tr>
<tr>
<td>No response</td>
<td>5 (7.8)</td>
<td>26 (27.1)</td>
<td>31 (19.4%)</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some High School</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (1.3%)</td>
</tr>
<tr>
<td>High School Grad</td>
<td>4 (6.3)</td>
<td>1 (2.5)</td>
<td>23 (14.4%)</td>
</tr>
<tr>
<td>Some college or specialized training</td>
<td>12 (18.8)</td>
<td>7 (17.5)</td>
<td>26 (16.3%)</td>
</tr>
<tr>
<td>Standard college or University Grad</td>
<td>27 (42.2)</td>
<td>22 (55.0)</td>
<td>45 (28.1%)</td>
</tr>
<tr>
<td>Graduate professional degree</td>
<td>16 (25)</td>
<td>10 (25.0)</td>
<td>33 (20.6%)</td>
</tr>
<tr>
<td>No response</td>
<td>5 (7.8)</td>
<td>0 (0)</td>
<td>31 (19.4%)</td>
</tr>
</tbody>
</table>

Note. 64 participants were recruited through a preschool and 96 participants were recruited online through Amazon’s MTurk.
Table 4 Descriptive Characteristics of Families by Recruitment Method

<table>
<thead>
<tr>
<th>Family Characteristic</th>
<th>Preschools n (%)</th>
<th>Mturk n (%)</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>$10,000 – $19,999</td>
<td>3 (4.7)</td>
<td>4 (10.0)</td>
<td>14 (8.8)</td>
</tr>
<tr>
<td>$20,000 – $29,999</td>
<td>3 (4.7)</td>
<td>11 (11.5)</td>
<td>19 (11.9)</td>
</tr>
<tr>
<td>$30,000 – $39,999</td>
<td>4 (6.3)</td>
<td>9 (9.4)</td>
<td>13 (8.1)</td>
</tr>
<tr>
<td>$40,000 – $59,999</td>
<td>6 (9.4)</td>
<td>25 (26)</td>
<td>31 (19.4)</td>
</tr>
<tr>
<td>$60,000 – $99,999</td>
<td>23 (35.9)</td>
<td>28 (29.2)</td>
<td>51 (31.9)</td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>22 (34.4)</td>
<td>5 (5.2)</td>
<td>27 (16.9)</td>
</tr>
<tr>
<td>No response</td>
<td>3 (4.7)</td>
<td>0 (0)</td>
<td>3 (1.9)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single (never married)</td>
<td>6 (9.4)</td>
<td>16 (16.7)</td>
<td>22 (13.8)</td>
</tr>
<tr>
<td>Married</td>
<td>50 (78.1)</td>
<td>63 (65.6)</td>
<td>113 (70.6)</td>
</tr>
<tr>
<td>Living together (not married)</td>
<td>3 (4.7)</td>
<td>12 (12.5)</td>
<td>15 (9.4)</td>
</tr>
<tr>
<td>Separated</td>
<td>0 (0)</td>
<td>3 (3.1)</td>
<td>3 (1.9)</td>
</tr>
<tr>
<td>Divorced</td>
<td>4 (6.3)</td>
<td>2 (2.1)</td>
<td>6 (3.8)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (1.6)</td>
<td>(0)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td>Parenting Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>4 (6.3)</td>
<td>19 (19.8)</td>
<td>23 (14.4)</td>
</tr>
<tr>
<td>With significant other</td>
<td>57 (89.1)</td>
<td>71 (74)</td>
<td>128 (80)</td>
</tr>
<tr>
<td>With Family</td>
<td>2 (3.1)</td>
<td>6 (6.3)</td>
<td>8 (5)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (1.6)</td>
<td>0 (0)</td>
<td>1 (0.6)</td>
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</tbody>
</table>

Note. 64 participants were recruited through a preschool and 96 participants were recruited online through Amazon’s MTurk.

Measures

Demographics

Maternal primary caregivers were asked to answer questions regarding their personal demographic information (e.g., caregiver’s relation to the child, marital status, race/ethnicity, caregiver age, child age, child gender). The demographic questionnaire also required the caregiver to provide their name and a phone number in order to allow for follow up contacts.
**Alabama Parenting Questionnaire-Preschool Revision (APQ-PR; Clerkin et al., 2007)**

As an adaptation from the Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996), the APQ-PR was used as a self-report measure of parenting practices. This measure has been adjusted to reflect developmentally appropriate questions regarding preschoolers. It consists of 32 items, rated on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*). The APQ-PR consists of three subscales: Positive Parenting, Punitive Parenting, and Negative/Inconsistent Parenting that were used as indicators of the parenting latent variables. Examples of items for Positive Parenting Practices are “you calmly explain to your child why his/her behavior was wrong when he/she misbehaves” and “you ask your child about his/her day in school.” Examples for items of Negative Parenting Practices are “your child is not punished when he/she has done something wrong” and “the punishment you give your child depends on your mood.” Lastly, examples for items for Punitive Parenting Practices are “You spank your child with your hand when he/she has done something wrong” and “You yell or scream at your child when he/she has done something wrong.” Positive, negative, and punitive parenting were used as indicators of the parenting practices latent variable in this study. Past research examining the psychometric properties of the APQ demonstrated that all three subscales had adequate internal consistency with Cronbach’s alphas (.63 - .82) and adequate test-retest reliability estimates after retesting one year later (.52 - .80; Clerkin et al., 2007). Cronbach’s alphas for this study were as follows: Positive Parenting, $\alpha = .84$; Negative Parenting, $\alpha = .86$; and Punitive Parenting, $\alpha = .81$.

*Parent Behavior Inventory (PBI; Lovejoy, Weis, O’Hare, & Rubin, 1999)*
The PBI was used a measure of parental response to their preschool child’s behavior. This 20-item measure uses a 6-point Likert scale from 0 (not at all true) to 5 (very true (I often do this)) to assess how parents feel they “usually act with [their] child.” The PBI consists of two scales: Hostile/Coercive, an indicator of negative parenting, and Supportive/Engaged, an indicator of positive parenting. Both scales were used as indicators of the parenting practices latent variable, along with scales from the APQ-PR. Examples of items for the Hostile/Coercive scale are “I threaten my child” and “I lose my temper when my child doesn’t do something I ask him/her to do.” Notably, one item was worded negatively and, therefore, loaded onto the Hostile/Coercive scale negatively (i.e., PBI 9 – “when my child misbehaves, I let him know what will happen if s/he doesn’t behave”). Examples of items for the Supportive/Engaged scale are “I teach my child new things” and “I thank or praise my child.” The development study of the PBI demonstrated good internal consistency for both scales (.81 and .83), adequate test-retest (.69 and .74), and good to excellent inter-rater reliability (.87-.90). Internal consistency scores from this study were good for both subscales, Hostile/Coercive scale, \( \alpha = .85 \) and Supportive/Engaged scale, \( \alpha = .88 \).

*Child Routines Questionnaire-Preschool Version (CRQ-P; Wittig, 2005)*

As an adaptation from the Child Routines Questionnaire (CRQ; Sytsma, Kelley, & Wymer, 2001), the CRQ-P was used as a parent report measure of their preschooler’s daily routines. This 35-item measure uses a frequency scale that rates how often the individual items occur at about the same time or in the same way ranging from 0 (never) to 4 (nearly always). These items load onto five subscales (i.e., Discipline, Daily Living, Activities/Positive Attention, Education/Social, and Religious/Hygiene) and a Total
Frequency scale; however, only the individual scales were used to create the latent variable, child routines. Examples of items are “my child has a routine for getting ready in the morning” and “my child eats lunch at about the same time each day.” Wittig (2005) found excellent internal consistency for the Total Frequency scale (.91). They also found adequate test-retest reliability for the Total Frequency scale (.74). Bater (2015) also found very good internal consistency for the Total Frequency scale (.90). Subscales demonstrated the following Cronbach’s alphas: Discipline, \( \alpha = .76 \); Daily Living, \( \alpha = .78 \); Activities/Positive Attention, \( \alpha = .76 \); Religious/Hygiene, \( \alpha = .60 \); and Social/Education, \( \alpha = .60 \).

*Children’s Behavior Questionnaire-Short Form (CBQ-SF; Putnam & Rothbart, 2006)*

As a shorter version adapted from the *Children’s Behavior Questionnaire* (Rothbart, Ahadi, Hershey, & Fisher, 2001), the CBQ-SF was used as a parent report measure of their preschooler’s temperament. This 94-item measure uses a 1 (*extremely untrue of your child*) to 7 (*extremely true of your child*) Likert scale (including a “not applicable” option) that loads onto three factors: Extraversion/Surgency, Negative Affectivity, and Effortful Control. However, for this study, Effortful Control was the only scale administered due to its particular relevance in this study. The subscales that form this composite scale are: Attentional Focusing, Inhibitory Control, Low Intensity Pleasure, Smiling/Laughter, and Perceptual Sensitivity. These were used as indicators of the self-regulation latent variable in this study. Examples of items are “when practicing an activity, has a hard time keeping his/her mind on it,” “is easily distracted when listening to a story,” and “can wait before entering into new activities if s/he is asked to.” The individual subscales on the Effortful Control scale demonstrated adequate to good
internal consistency in previous studies (.69 to .75; Putnam & Rothbart, 2006). The
alphas were as follows for the present study: Attentional Focusing, \( \alpha = .69 \); Inhibitory
Control, \( \alpha = .62 \); Low Intensity Pleasure, \( \alpha = .79 \); Smiling/Laughter, \( \alpha = .72 \); and
Perceptual Sensitivity; \( \alpha = .68 \).

*Eyberg Child Behavior Inventory (ECBI; Eyberg & Robinson, 1983)*

The ECBI is a parent report measure of disruptive behavior and conduct
problems, for children ages of 2 to 16. This 36-item measure consists of two scales:
Problem Scale using dichotomous scoring (“yes” or “no”) if the child’s behavior is
problematic and an Intensity Scale using a Likert scale from 1 (*never*) to 7 (*always*)
reporting how often the child’s behavior occurs. Examples of items are “destroys toys
and other objects” and “argues with parents about rules.” This study originally proposed
to use the ECBI Intensity scale as an observed variable comprising the EBP latent
variable. However, the Intensity scale was better conceptualized as a hierarchical
tripartite model (i.e., Oppositional Defiant Behavior, Inattentive Behavior, and Conduct
Problem Behavior), which was structurally supported by a CFA and an examination of
the three subscales’ internal consistencies (Burns & Patterson, 2000). The authors
reported alphas by age (2-5 years old) and gender as follows: Oppositional Defiant
Behavior, males \( \alpha = .87 \) and females \( \alpha = .88 \); Inattentive Behavior, males \( \alpha = .83 \) and
females \( \alpha = .85 \); and Conduct Problem Behavior, males \( \alpha = .82 \) and females \( \alpha = .79 \). This
22-item tripartite model was further supported by a study conducted in a Norwegian
sample that demonstrated similar alphas: .89, .92, and .76, respectively (Hukkelberg,
2016). The three scales demonstrated excellent internal consistency for this study (.91,
.90, and .88, respectively).
Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)

The SDQ is a measure of young children’s behaviors, emotions, and interpersonal relationships. This 25-item measure consists of 5 scales (i.e., Hyperactivity, Emotional Symptoms, Conduct Problems, Peer Problems, Prosocial) and a Total Scale that are assessed on a three-point scale (Not True, Somewhat True, Certainty True). For this study, Hyperactivity and Conduct Problems were used as measures of preschool children’s EBP. Examples of items on the Hyperactivity scale are “easily distracted, concentration wanders” and “constantly fidgeting or squirming.” Examples of Conduct Problems are “often has temper tantrums or hot tempers” and “often lies or cheats.” A systematic review of 26 studies that reported the SDQ’s psychometric properties demonstrated good to adequate internal consistencies for Hyperactivity (.69) and Conduct Problems (.56; Kersten et al., 2016).

Procedure

Once IRB approval was obtained from the University of Southern Mississippi, child participants and their mothers were recruited from daycares and preschools in Mississippi, Louisiana, and California. First, directors were asked to sign a letter on school letterhead approving data collection. Next, flyers were sent out through hard copy and electronically to approved locations to recruit mothers into the study. Flyers provided a link that allowed the mothers to complete the measures online (i.e., Qualtrics) or hard-copy paper packets that were returned to the child’s school in a confidential envelope. The method used depended on the preference of the mother and school’s director.

Upon agreeing to participate, mothers were asked to provide written informed consent. The informed consent provided the mothers the option to withdraw from the
study at any point and indicated that she did not need to answer questions she felt uncomfortable answering. The mother was required to confirm that her preschool child was between the ages of three to five and did not have a developmental delay (exclusionary criteria). If there were multiple children between the ages of three and five, the mother was asked to first select the child that was attending the center and was able to participate in the performance-based tasks, and then was asked to randomly select one of her children to avoid sampling bias. When mothers completed the questionnaire for both children, one was randomly selected and deleted by the researcher.

Next, mothers completed all of the parent-report measures (i.e., APQ-PR, PBI, CRQ-P, CBQ-SF, ECBI, SDQ). Notably, three quality assurance questions were included in order to assess that the mothers completed the measures thoroughly and accurately. Mothers were provided with a $10 incentive for completion of a majority of the measures.

Additionally, 96 mothers were recruited through Amazon Mturk, an online crowdsourcing internet platform. The study was posted on the Mturk website with the same criteria: legal maternal caregiver (18 years or older) with a child between the ages of 3 to 5 who does not have a developmental delay (i.e., autism spectrum disorder, intellectual disability, or a global development delay). An additional criterion was added requiring that the mother and preschool child must live in the United States. Mothers were provided with a similar informed consent, the same questionnaires, the same quality assurance questions, and were provided with the same option to withdraw from the study at any point. Due to differences in accepted standards of compensation, mothers were compensated with $4.70 through Mturk’s website.
CHAPTER III - RESULTS

Data Screening

First, the data were screened for outliers, missing data, and other inappropriate data. Any participant who did not answer 20% or more of the items were excluded from the analyses. Therefore, the remaining analyses regarding mother data included 160 participants (17 mothers removed). Missing variables were examined for unengaged, pattern responses versus randomly missing data by a visual examination (Gaskin, 2016). Due to item responses missing at random, missing values for ordinal data were replaced using the item’s median scores across participants. Missing responses for demographic information was not replaced. During data screening, observed variables were within acceptable limits for skewness but three were further examined for leptokurtosis: APQ-PR Punitive Parenting, PBI Supportive and Engaged, and ECBI Conduct Problem Behaviors (George & Mallery, 2016). The scores indicated that most participants reported low punitive but highly supportive and engaged parenting and their children had low levels of conduct problem behaviors, which is expected for a community sample. Brown (2006) suggests that kurtosis should be addressed if the values are below -10 or above 10; therefore, although these values are noted, transformations were not conducted.

Preliminary Comparisons

Preliminary comparisons were conducted between mothers recruited through preschools versus Amazon’s MTurk to assess for possible differences among the demographic or observed outcome variables. For continuous variables, a one-way Analysis of Variance (ANOVA) was used and the Welch statistic was utilized for those that violated the homogeneity of variance assumption. The groups significantly differed
Table 5 Descriptive Results for Variables of Interest

<table>
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<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
<th>Skew</th>
<th>Kurtosis</th>
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<td>Positive Parenting</td>
<td>4.35</td>
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<td>2</td>
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<td>.73</td>
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<td>Negative Parenting</td>
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<td>5</td>
<td>.86</td>
<td>.57</td>
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<tr>
<td>Punitive Parenting</td>
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<td>.74</td>
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<td>5</td>
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<td>3.26</td>
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<td>Hostile/Coercive Parenting</td>
<td>2.17</td>
<td>.79</td>
<td>1</td>
<td>5</td>
<td>1.21</td>
<td>1.67</td>
</tr>
<tr>
<td>Supportive/Engaged Parenting</td>
<td>5.48</td>
<td>.62</td>
<td>3</td>
<td>6</td>
<td>-1.93</td>
<td>4.17</td>
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<td>Discipline Routines</td>
<td>4.20</td>
<td>.53</td>
<td>3</td>
<td>5</td>
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<td>-.08</td>
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<tr>
<td>Daily Living Routines</td>
<td>4.26</td>
<td>.59</td>
<td>2</td>
<td>5</td>
<td>-1.08</td>
<td>1.91</td>
</tr>
<tr>
<td>Activities/Positive Attention</td>
<td>4.11</td>
<td>.60</td>
<td>2</td>
<td>5</td>
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<td>1.23</td>
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<td>Religion/Hygiene Routines</td>
<td>3.50</td>
<td>.82</td>
<td>2</td>
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<td>Inhibitory Control</td>
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<td>.05</td>
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<td>Low Intensity Pleasure</td>
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<td>.72</td>
<td>3</td>
<td>7</td>
<td>-1.29</td>
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<td>Perceptual Sensitivity</td>
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<tr>
<td>Smiling/Laughter</td>
<td>6.02</td>
<td>.94</td>
<td>3</td>
<td>7</td>
<td>-1.12</td>
<td>.66</td>
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<td>Oppositional Defiant Behavior</td>
<td>3.15</td>
<td>1.27</td>
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<td>7</td>
<td>.54</td>
<td>-.18</td>
</tr>
<tr>
<td>Inattention Behavior</td>
<td>2.93</td>
<td>1.49</td>
<td>1</td>
<td>7</td>
<td>.66</td>
<td>-.16</td>
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<td>Conduct Problems Behavior</td>
<td>1.97</td>
<td>1.08</td>
<td>1</td>
<td>6</td>
<td>1.83</td>
<td>3.40</td>
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Note: Sample = 160. M = Mean; SD = Standard deviation; Min = Minimum; Max = Maximum.

on mother’s education (Welch’s $F = 9.21, p < .05$), paternal caregiver’s education (Welch’s $F = 7.96, p < .05$), and income (Welch’s $F = 25.46, p < .001$). Mothers recruited from preschools reported higher education levels for both mothers and fathers, and had a greater income. For categorical variables, a chi-square analysis was conducted on each of the variables and Likelihood Ratios were examined when variables violated the homogeneity of variance assumption. Results of these analyses were as follows: Marital Status ($\chi^2 = 9.9, p < .05$), child sex ($\chi^2 = 12.65, p < .001$), child race ($\chi^2 = 1.64, p = .20$), co-parenting status ($\chi^2 = .80, p = .62$), and child age ($\chi^2 = 5.04, p = .081$). Mothers who were recruited through MTurk were more likely to be a single parent and have a female child. Outcome variables were treated as categorical, for consistency with their interpretation in the SEM analyses and Likelihood Ratios were examined: Oppositional
Defiant Behaviors ($\chi^2 = 59.96, p < .05$), Inattentive Behaviors ($\chi^2 = 31.00, p = .10$), and Conduct Problem Behaviors ($\chi^2 = 9.9, p = .26$; Gaskin, 2016). Those recruited through local preschools demonstrated higher levels of oppositional defiant behaviors. These findings reflect differences in recruitment method between preschools and Amazon’s MTurk. However, the study aimed to obtain a diverse community sample; therefore, all data were analyzed together.

Zero-order correlations among observed variables were conducted (see Table 10). The majority of variables from the demonstrated correlations as predicted by theory and results of past research. Correlations were interpreted as significant at $p < .05$. Observed variables from the Positive Parenting latent variable (i.e., APQ-PR Positive Parenting and PBI Supportive/Engaged Parenting) were positively correlated with one another and all observed variables from the Child Routine (i.e., CRQ-P Discipline, Daily Living, Activities/Positive Attention, and Religion/Hygiene) and Self-Regulation (i.e., CBQ-SH Attentional Focusing, Inhibitory Control, Low Intensity Pleasure, Perceptual Sensitivity, and Smiling/Laughter) latent variables. Observed Positive Parenting variables were negatively correlated to all Negative Parenting (i.e., APQ-PR Negative and Punitive Parenting, and PBI Hostile/Coercive Parenting) and EBP (i.e., ECBI Oppositional Defiant Behavior, Inattentive Behavior, and Conduct Problem Behaviors) observed variables. Observed variables from the Negative Parenting latent variables were positively correlated with one another and all observed EBP variables. Observed Negative Parenting variables were modestly and negatively correlated with all observed variables from the Child Routine latent variable, except for the Religion/Hygiene scale ($p = .40, .11, \text{ and } .16, \text{ respectively}$). Observed Negative Parenting variables were also...
moderately and negatively correlated with the observed Self-Regulation variables, with
the exception of a marginally significant relationship between APQ-PR Negative
Parenting and Inhibitory control \( (p = .08) \). All observed Child Routine variables were
moderately and positively correlated with one another and negatively correlated with the
Oppositional Defiant Behavior observed EBP variable; however, only three of the four
observed Child Routines variables (Discipline, Daily Living, and Activities/Positive
Attention) were positively correlated with all observed Self-Regulation variables and
negatively correlated with the Conduct Problem Behavior scale. The CRQ-P
Religion/Hygiene scale was positively correlated with the observed Self-Regulation
Inhibitory Control and Perceptual Sensitivity variables, but did not reach significance
with the observed Self-Regulation Attentional Focusing, Low Intensity Pleasure and
Smiling/Laughter, or the observed EBP Inattentive Behavior and Conduct Problem
variables \( (p = .41, .51, .18, .11, \) and \( .86 \) respectively). The CRQ-P Activities/Positive
Attention routine scale was negatively correlated with the Inattentive Behavior scale
while the Discipline and Daily Living routine scales did not reach significance with this
EBP observed variable \( (p = .26 \) and \( .13, \) respectively). All observed Self-Regulation
variables were positively correlated to one another and negatively correlated with
observed EBP variables, except for the relationship between Perceptual Sensitivity and
Oppositional Defiant Behavior \( (p = .15) \). Lastly, all observed variables from the EBP
latent variable were positively correlated with one another.

Pearson or point-biserial correlations, for continuous or dichotomized categorical
variables, respectively, were then conducted between demographic variables (i.e., child
sex \[ coded \text{ males} = 1, \text{ females} = 2 \], race \[ coded \text{ white} = 1, \text{ non-white} = 2 \], and age;
Table 6  
Bivariate Correlations between Observed Variables.

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Note: Sample = 160. PP (1) = Positive Parenting; SE (2) = Supportive/Engaged Parenting; NP (3) = Negative Parenting; Pun. (4) = Punitive Parenting; H/C (5) = Hostile/Coercive Parenting; Dis (6) = Discipline Routine; DL (7) = Daily Living Routine; A/PA (8) = Activity/Positive Attention Routine; RH (9) = Religion/Hygiene Routine; Inh. (10) = Inhibitory Control; AF (11) = Attentional Focusing; LIP (12) = Low Intensity Pleasure; PS (13) = Perceptual Sensitivity; S/L (14) = Smiling/Laughter; ODB (15) = Oppositional Defiant Behaviors; IB (16) = Inattentive Behaviors; and CPB (17) = Conduct Problem Behaviors. *p < .05, **p < .01.
Table 7  *Bivariate Correlations between Child Demographic Variables and Outcome Variables*

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<tr>
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<th>Child Sex</th>
<th>Child Race</th>
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<th>Coparenting</th>
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<td>ODB</td>
<td>.01 (<em>p</em> = .95)</td>
<td>.00 (<em>p</em> = .96)</td>
<td>-.04 (<em>p</em> = .65)</td>
<td>.04 (<em>p</em> = .64)</td>
<td>.09 (<em>p</em> = .27)</td>
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<td>IB</td>
<td>.07 (<em>p</em> = .40)</td>
<td>.03 (<em>p</em> = .70)</td>
<td>.06 (<em>p</em> = .45)</td>
<td>.01 (<em>p</em> = .91)</td>
<td>.11 (<em>p</em> = .16)</td>
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<tr>
<td>CPB</td>
<td>.06 (<em>p</em> = .45)</td>
<td>.14 (<em>p</em> = .08)</td>
<td>-.05 (<em>p</em> = .55)</td>
<td>.01 (<em>p</em> = .93)</td>
<td>.11 (<em>p</em> = .16)</td>
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*Note.* Child gender coded as 1 = males, 2 = female. Child race was dichotomized into 1 = White, 2 = Non-White. Parenting was dichotomized into 1 = single parenting, 2 = co-parenting. ODB = Oppositional Defiant Behavior, IB = Inattentive Behavior, CPB = Conduct Problem Behaviors. *p* < .05, **p** < .01.

marital and parenting status [coded single parenting = 1, co-parenting = 2]; income) and outcome variables (i.e., ECBI Oppositional Defiant Behavior, Inattentive Behavior, and Conduct Problem Behavior) to identify covariates (see Table 7). No significant correlations between the demographic variables and the EBP variables were observed, therefore, no covariates were included in the subsequent analyses.

**Confirmatory Factor Analyses**

The Mplus program (v7.4; Muthén & Muthén, 1998-2015) was used for the remaining statistical analyses. First, four hierarchical CFAs were performed to examine the proposed measurement models of the hypothesized latent variables (i.e., positive parenting practices, negative parenting practices, child routines, child self-regulation, and child EBP) as specified below and depicted in Figures 1-7. CFAs allow for analyses of the factor structure and individual factor loadings and assessment of modification indices that provide potential model re-specification that may improve fit indices. Items with low loadings (≤ .30) and paths with specification errors (e.g., correlation of observed variable to latent variable > 1.00, negative residual variance; Brown, 2006) are examined and
modified accordingly. For items with low loadings, content was analyzed for theoretical support to aid in the decision about retaining or removing the item.

Weighted least square means and variance (WLSMV) estimates of parameters were used (Brown, 2006, Li, 2016) along with standard fit indices such as comparative fit index (CFI), Tucker-Lewis Index (TLI), and root-mean-square error of approximation (RMSEA) to assess model fit. The recommendations from Hu and Bentler’s (1999) empirical examination of different cutoff scores for the fit indices are as follows: CFI and TLI values of .95 or above and RMSEA values of less than .06 are considered to have good model fit. However, some researchers have posited that Hu and Bentler’s (1999) criteria are too conservative, particularly for complex models with multiple factors, and suggest alternative cut-offs that are less conservative (see Brown, 2006; see Kenny, 2015; Kline, 2016). Therefore, the following interpretation guidelines were used: CFI and TLI above .90 can suggest “acceptable model fit” and RMSEA indices from .08 to .1 can suggest “mediocre fit” (Brown, 2006; Kenny, 2015). RMSEA is affected by sample size, so it is suggested that 90% confidence intervals be reported and interpreted along with the RMSEA value (Kenny, 2015; Kline, 2016). All parameter estimates are reported using standardized effects.

First, the measurement models for the Positive Parenting and Negative Parenting latent variables were assessed using CFA. The models were hierarchical with lower level latent variables (APQ-PR Positive Parenting and PBI Supportive/Engaged Parenting as lower level latent variables indicated by 12 and 10 observed items, respectively, for the higher level Positive Parenting latent variable and APQ-PR Negative and Punitive Parenting and PBI Hostile/Coercive Parenting as lower level latent variables indicated by
7, 5, and 10 observed items, respectively, for the higher level Negative Parenting latent variable. Given the overlapping construct and consistent negative correlation found in the literature between positive and negative parenting practices, and that the positive parenting latent variable had just two indicator variables, a CFA was conducted with both latent variables in the same model, which were allowed to correlate with one another (see Figure 1 and 2). This satisfied the 3-indicator identification rule for this model. The latent variables showed a negative correlation to one another \( r = -0.56, p < .00 \). The model demonstrated good fit indices: CFI = .91; TLI = .90; and RMSEA = .07, CI 90% (.07 to .08). The factor loadings across both latent variables ranged between .80 and .97.

Ultimately, the Child Routine model was composed of four subscales from the CRQ-P measure (i.e., Discipline, Daily Living, Activity/Positive Attention, and Religion/Hygiene; 8, 8, 8, and 5 items, respectively). Two CFAs were conducted to determine which measurement model fit the data best. The first measurement model included all five scales from the CRQ-P, including Education/Social Routine; however, the Education/Social Routine’s parameter estimate was out-of-range, indicated by the standardized factor correlation exceeding 1.0 suggesting that this parameter explained a majority of the variance so this lower order latent variable was removed (Brown, 2006) and the CFA was re-examined on the four remaining scales (see Figure 3). This measurement model was over-identified, recursive, and met the t-rule. This CFA demonstrated relatively good model fit (CFI = .90; TLI = .90; and RMSEA = .07, CI 90% [.07 to .08]). Factor loading across variables were between .52 and .93.
Figure 1. Parenting Practices CFA – Positive Parenting Practices Latent Variable

Note. N = 160. Pospar = Positive Parenting Practice latent variables, se = supportive/engaged scale; pos = positive parenting practices scale, pbi = Parent Behavior Inventory, and apqpr = Alabama Parenting Questionnaire Preschool Revision. Standardized regression coefficients are reported. Correlated with Negative Parenting Practices latent variable ($r = -0.56, p < .00$; see Figure 2).
Figure 2. Parenting Practices CFA – Negative Parenting Practices Latent Variable

Note. N = 160. Negpar = Negative Parenting Practice latent variables, hc = hostile/coercive scale; pun = punitive parenting practices scale, neg = negative parenting practice scale, pbi = Parent Behavior Inventory, and aprq = Alabama Parenting Questionnaire Preschool Revision. Standardized regression coefficients are reported. Correlated with Positive Parenting Practices latent variable (r = -.56, p < .00; see Figure 1).
Figure 3. Child Routines CFA

Note. N = 160. R = Child Routine latent variable, rh = religion/hygiene scale, ap = activity/positive attention scale, dl = daily living scale, discip = discipline scale, and crq_p = Child Routines Question—Preschool. Standardized regression coefficients are reported.
A CFA was performed to assessed with the self-regulation latent variable factor structure with the five CBQ-SH scales (i.e., Attentional Focusing, Inhibitory Control, Low Intensity Pleasure, Perceptual Sensitivity, and Smiling/Laughter; 6, 6, 8, 6, and 6 items, respectively). This measurement model was over-identified, recursive, and met the t-rule. The first CFA demonstrated lower than desirable fit (CFI = .80; TLI = .73; and RMSEA = .08, CI 90% [.07 to .09]; see Figure 4); therefore, modification indices were first analyzed to assess potential modifications that could improve the fit indices. Attentional Focusing and Inhibitory Control were of particular note. They demonstrated a positive correlation with one another when modification indices were examined and demonstrated correlation in the extant literature (Bater & Jordan, 2017). The latent variable allowed to correlate the two scales (r = .56, p < .001; see Figure 5) and, although the model fit indices improved (CFI = .83; TLI = .82; and RMSEA = .08, CI 90% [.07 to .08]) they were still lower than desired. Therefore, items with loading results below .30 were analyzed for their theoretical content. Item 32 (“sometimes becomes absorbed in a picture book and looks at it for a long time”) from the Low Intensity Pleasure scale had a low factor loading (.20). Item content was analyzed further and the item was ultimately removed as the use of the word “sometimes” in the question could be confusing and lead to different interpretations by participants. After item removal, the model demonstrated mediocre model fit: CFI = .84; TLI = .83; and RMSEA = .08, CI 90% (.07 to .08; see Figure 6). Several other modifications suggested by the results were attempted (e.g., removing items, removing scales) but the goodness of fit indices did not improve significantly enough to support removing theoretically relevant items and/or scales. Factor loadings were between .34 and .84. Notably, the factor loading for Inhibitory Control did not meet
the desired .40 factor loading (.34) but was retained due to the theoretical rationale that inhibitory control is a large factor in behavior self-regulation (Bater & Jordan, 2017).

Finally, several CFAs were conducted to assess the measurement model for the EBP latent variable. First, the ECBI Intensity score and the two SDQ scales (Hyperactivity and Conduct Problems) were examined. All scales were used in the CFA and the model was modified until parameter estimates were acceptable. As a result, SDQ Hyperactivity and Conduct Problems were removed. This is likely because items from the two measures (i.e., ECBI and SDQ) are very similar in content. Therefore, the ECBI was split into a 22-item three scale model (i.e., Oppositional Defiant Behavior, Inattentive Behavior, and Conduct Problem Behavior; 9, 4, and 8 items, respectively) and a third CFA was conducted (Burns & Patterson, 2000; Hukkelberg, 2006; see Figure 7). This CFA demonstrated good fit: CFI = .96; TLI = .96; and RMSEA = .08, CI 90% (.07 to .09). Factor loadings ranged between .75 to .94.
Figure 4. Self-Regulation CFA – all scales

Note. N = 160. Sr = Self-Regulation latent variable, smi = smiling/laughter scale, per = perceptual sensitivity scale, lip = low intensity pleasure scale, inh = inhibitory control scale, attfo = attentional focusing scale, and cbqsh = Child Behavior Questionnaire – Short Form. Standardized regression coefficients and standard errors are reported.
Figure 5. Self-Regulation CFA 2 – Inhibitory Control and Attentional Focusing Scales Correlated

Note. N = 160. Sr = Self-Regulation latent variable, smi = smiling/laughter scale, per = perceptual sensitivity scale, lip = low intensity pleasure scale, inh = inhibitory control scale, attfo = attentional focusing scale, and cbqsh = Child Behavior Questionnaire – Short Form. Standardized regression coefficients and standard errors are reported.
Figure 6. Self-Regulation CFA 2 – Inhibitory Control and Attentional Focusing Scales Correlated and Item 32 Removed

Note. N = 160. Sr = Self-Regulation latent variable, smi = smiling/laughter scale, per = perceptual sensitivity scale, lip = low intensity pleasure scale, inh = inhibitory control scale, attfo = attentional focusing scale, and cbqsh = Child Behavior Questionnaire – Short Form. Standardized regression coefficients and standard errors are reported.
Figure 7. Parenting Practices CFA – Positive Parenting Practices Latent Variable

Note. N = 160. EBP = Externalizing behavior problems, cp = conduct problem behaviors scale, inattn = inattention behavior scale, odd = oppositional defiant behavior scale, and ecbi = Eyberg Child Behavior Inventory. Standardized regression coefficients are reported.
Main Structural Equation Analyses

To determine if the proposed serial mediation model (i.e., child routines and self-regulation sequentially mediate the relationship between parenting practices and externalizing behaviors), is the model with the best fit, Structural Equation Modeling (SEM) analyses were employed. All SEM models were identified given that the t-rule, scale dependency, and the two-indicator rule were satisfied and that the models were recursive. The models were over-identified, evidenced by the degree of freedom for each model being over one. Similar goodness of fit indices were used (i.e., CFI, TLI, and RMSEA) as well as the standardly reported chi-square goodness of fit test (Kline, 2016). The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) predictive/parsimony-corrected fit indices were also reported to allow for model comparison with the smaller value suggesting the model with the best fit (Bryne, 2012, Geiser, 2013, Kline, 2016). Confidence interval (CI) estimates based on 5000 bias-corrected bootstrap samples were used to assess the significance of the models with the inclusion of zero suggesting a non-significant pathway.

The direct effect model assessing the four predictor variables’ (i.e., positive and negative parenting, child routines, child self-regulation) relationship to EBP was examined via SEM first, as seen in Figure 8 (only observed and latent variables depicted, individual items were not included in the figure). This model demonstrated mediocre to poor fit: $\chi^2 (107, N = 160) = 279.58, p < .001; CFI = .87; TLI = .84; RMSEA = .10, CI 90\% (.09 to .12); AIC = 5587.17; and BIC = 5780.90$. Positive Parenting was negatively correlated to Negative parenting while positively correlated to both Child Routines and Self-Regulation. Negative Parenting was negatively correlated with Child Routines and
Figure 8. Direct Effect Model

Note. N = 160. EBP = Externalizing behavior problems. Standardized regression coefficients and standard errors are reported. Statistics in parentheses are 95% confidence intervals based on 5,000 bias-corrected bootstrap samples; inclusion of zero suggests non-significant results depicted by the dotted paths. Significant results are depicted by the solid paths.

Self-Regulation. Child Routines was positively correlated to Self-Regulation. As suggested by the Self-Regulation CFA results, observed self-regulation variables, Attentional Focusing and Inhibitory Control were correlated with one another ($r = .18, p < .04$). The direct effect model results also indicated that Attentional Focusing also demonstrated a negative significant relationship to Inattentive Behavior (EBP; $r = -.59, p < .001$), which is theoretically supported by their overlapping constructs. No predictor
variables demonstrated a significant direct effect to EBP: Positive Parenting ($\beta = -0.03$, SE = 0.38, CI 95% [-0.77 to 0.70]), Negative Parenting ($\beta = 0.60$, SE = 0.33, CI 95% [-0.05 to 1.26]), Child Routines ($\beta = -0.14$, SE = 0.30, CI 95% [-0.72 to 0.44]), and Self-Regulation ($\beta = -0.08$, SE = 0.51, CI 95%, [-1.08 to 0.92]). However, Negative Parenting demonstrated a significant relation to EBP when the CI were analyzed at 90%, (CI 90% = 0.05 to 1.15). This latent model allows us to account for approximately 56% of the variability in EBP.

Next, the indirect effect model was analyzed, placing self-regulation as a mediator between predictor variables (child routines, positive parenting and negative parenting) and the outcome variable (EBP; see Figure 9). Paths among Attentional Focusing and Inhibitory Control and Inattentive Behavior observed variables were retained as suggesting in the CFA model. This model also demonstrated mediocre to poor model fit: $\chi^2$ (110, N = 160) = 290.38, $p < .001$; CFI = .87; TLI = .83; RMSEA = .10, CI 90% (.09 to .12); AIC = 5591.96; and BIC = 5776.47. Correlations between the predictor variables were consistent with the direct effect model. Analyses of specific paths demonstrated the following significant relationships: Negative Parenting was negatively related to Self-Regulation, and Self-Regulation was negatively related to EBP (Figure 9). The remaining paths were not significant: Positive Parenting to Self-Regulation ($\beta = 0.24$, SE = 0.21, CI 95% [-0.19 to 0.66]) and Child Routine to Self-Regulation ($\beta = 0.19$, SE = 0.20, CI 95% [-0.21 to 0.59]). Indirect effects were then analyzed for each predictor variable to EBP through the mechanism of Self-Regulation. Self-regulation was found to be a mediator of the relationship between Negative Parenting and EBP (Figure 9). The indirect effects for the other

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**Figure 9. Indirect Effect Model**

Note. N = 160. EBP = Externalizing behavior problems. Standardized regression coefficients and standard errors are reported. Statistics in parentheses are 95% confidence intervals based on 5,000 bias-corrected bootstrap samples; inclusion of zero suggests non-significant results depicted by the dotted paths. Significant results are depicted by the solid paths. Indirect effects are depicted by the curved paths.

Predictor variables were not significant: Positive Parenting (β = .18, SE = .16, CI 95% [-.49 to .13]) and Child Routines (β = -.15, SE = .15, CI 95% [-.43 to .14]). This indirect latent model accounts for approximately 86.2% of the variability in Self-Regulation and 57.5% of the variability in EBP.

The last SEM conducted was on the serial mediation model with Positive and Negative Parenting as predictor variables, Child Routines as the first mediator, Self-Regulation as the second mediator, and EBP as the outcome variable (see Figure 10). In addition to the paths between the Attentional Focusing scale and the Inhibitory Control and Inattentive Behaviors scales, a path was also placed between Negative
Parenting and EBP, as hypothesized based off past literature (Bater & Jordan, 2017). This model demonstrated relatively poor fit: $\chi^2(111, N = 160) = 332.11, p < .001; CFI = .84; TLI = .80; RMSEA = .11, CI 90\% (.10 to .13); AIC = 5631.69; and BIC = 5813.13.$

Positive Parenting demonstrated a significant positive relation to Child Routines, whereas Negative Parenting did not exhibit a significant relationship ($\beta = -.05, SE = .11, CI 95\% [-.26 to .16]). Negative Parenting demonstrated a positive relationship to EBP and, although inversely related, Self-Regulation was not significantly related to EBP ($\beta = -.24, SE = .15, CI 95\% [-.55 to .03]). Then, the serial mediation results were interpreted for total and indirect effects. A significant relationship was found for the total effect of
Negative Parenting to EBP ($\beta = .63$, $SE = .13$, $CI 95\% [.38$ to $.88]$) but no relationship was found for the indirect effect of Negative Parenting to EBP through Child Routines and Self-Regulation ($\beta = .01$, $SE = .02$, $CI 95\% [-.04$ to $.05]$). No relationship was found for the total or indirect effects of Positive Parenting to EBP through Child Routines and Self-Regulation ($\beta = -.14$, $SE = .09$, $CI 95\% [-.31$ to $.03]$). This serial mediation model accounts for approximately 67% variability in Child Routines, 52% Self-Regulation, and 53.5% EBP.

All proposed models were then compared to one another by examining the AIC and BIC predictive fit indices. The smallest predictive fit index suggests that that proposed model fits the data best and is most likely to be replicated, barring the difference is not due to chance (Bryne, 2012, Geiser, 2013, Kline, 2016). The models resulted in the following predictive fit indices: direct effect model, AIC = 5587.17 and BIC = 5780.90; indirect effect model, AIC = 5591.96 and BIC = 5776.47; and serial mediation model, AIC = 5631.69 and BIC = 5813.13. The AIC index is smallest for the direct effect model (5587.17), suggesting that is the model with the best fit to the data, while the BIC index is smallest for the indirect effect model (5776.47). The AIC index tends to favor simplistic, larger models, regardless of sample size, and is suggested for finding the model with the “best fit” for making future predictions; whereas, the BIC index takes sample size into account more directly and is best for finding the “true” or “quasi-true” model that can provide an explanation of the relationships (Bryne, 2012, Kline, 2016, Nylund et al., 2007; Shmueli, 2010). Lastly, despite the fact that the AIC index is more commonly reported in SEM studies, simulation studies comparing the
information criterion indices also suggest that the BIC is more apt to select the most parsimonious model (Kline, 2016, Nylund et al., 2007).

Post-Hoc Analysis

After establishing that the indirect effect model was the model with the best BIC predictive fit index, a post hoc analysis was conducted where the sequence of the two proposed mediators (child routines and self-regulation) was reversed to further inform the temporal relationship (see Figure 11). Therefore, for the post hoc analysis, the predictor variables were Positive Parenting, Negative Parenting and Self-Regulation, Child Routines was the mediator variable, and EBP was the outcome variable. This model demonstrated mediocre to poor fit: $x^2 = 338.11$ (110), $p < .001$; CFI = .83; TLI = .79; RMSEA = .11, $CI 90\%$ (.10 to .13); AIC = 5639.69; and BIC = 5824.20. Positive Parenting was positively related to Child Routines ($\beta = .65$, SE = .26, $CI 95\%$ [.13 to 1.16]) while Child Routines was negatively related to EBP ($\beta = -.49$, SE = .09, $CI 95\%$ [-.67 to -.30]). The other two relationships were not significant: Negative Parenting to Child Routines ($\beta = .10$, SE = .25, $CI 95\%$ [-.39 to .59]) and Self-Regulation to Child Routine ($\beta = .26$, SE = .40, $CI 95\%$ [-.53 to 1.05]). When indirect effects were analyzed, the only significant result was the indirect effect of Positive Parenting to EBP through Child Routines ($\beta = -.31$, SE = .14, $CI 95\%$ [-.58 to -.05]). Negative Parenting to EBP through Child Routines ($\beta = -.05$, SE = .12, $CI 95\%$ [-.29 to .19]) and Self-Regulation to EBP through Child Routines ($\beta = -.13$, SE = .20, $CI 95\%$ [-.53 to .27]) did not demonstrate significant indirect effects. This model accounts for 64% variability in Child Routine and 23.6% variability in EBP. When the AIC and BIC predictive fit indices were
Figure 11. Post Hoc Indirect Effect Model

Note. N = 160. EBP = Externalizing behavior problems. Standardized regression coefficients and standard errors are reported. Statistics in parentheses are 95% confidence intervals based on 5,000 bias-corrected bootstrap samples; inclusion of zero suggests non-significant results depicted by the dotted paths. Significant results are depicted by the solid paths. Indirect effects are depicted by the curved paths.

compared across the two models, the indirect effect predictive fit indices (AIC = 5591.96 and BIC = 5776.47) were smaller than the post hoc indices (AIC = 5639.69; and BIC = 5824.20), suggesting the indirect effect model fits the data better than the post hoc model.
CHAPTER IV – DISCUSSION

Goals and Hypotheses

Previous research has established a strong relationship between parenting practices (positive and negative parenting, respectively) and EBP in young children (Bayer et al., 2008; Darling & Steinberg, 1993; Trepat, Granero, & Ezpeleta, 2014; Hanisch et al., 2014; Kobinsky, Kuvalanka, & Randolph, 2006; Maguire-Jack, Gromoske, & Berger, 2012; Shapiro, 2015). Additional studies have examined the mechanisms underlying this relationship to provide further information about the variables and their relationships that may inform prevention and intervention efforts for early identified EBP. Both child routines (Bater & Jordan, 2017; Churchill & Stoneman, 2004; DeMore et al., 2005; Harris et al., 2013; Lanza & Drabick, 2011; Sytsma-Jordan & Kelley, 2004; Taylor, 2011) and self-regulation (Barnes et al., 2013; Caughy et al., 2013; Eiden, Edwards, & Leonard, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Valiente et al., 2006; Vazsonyi & Huang, 2010) have independently and respectively demonstrated an indirect effect on the relationship between both forms of parenting practices and EBP. Although researchers have posited that consistent and predictable child routines promote higher levels of self-regulation, few have provided empirical support and, therefore, suggests replication of the previous studies conducted (Barber & Munz, 2011; Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; McCullough & Willoughby, 2009; Perry, 2005; Wittig, 2005).

Within the literature, only two studies have examined the roles of routines and self-regulation in young children together (Bater & Jordan, 2017; Taylor, 2011). Of particular interest to the current study, Bater and Jordan (2017) demonstrated preliminary
The direct and indirect effect of these two serial mediating variables between the relationship of parenting practices (positive and negative, respectively) and EBP in preschool-aged children. The aim of the current study was to expand upon those past results and employ a more stringent analytic strategy with a larger sample size. This analytic approach, structural equation modeling, also compared three empirically supported models (direct, indirect, and serial mediation) to assess which model best fit the data. Comparing these three models may provide insight into the best explanation of these relationships which will allow us to better understand the interplay of these variables and improve future prevention and intervention efforts.

**Measurement models and preliminary results**

Measurement models of the proposed latent variables were assessed by conducting individual CFAs. Positive and Negative Parenting latent variables were retained as hypothesized. However, adjustments were made to the other models based on the CFA results. Within the Child Routines latent variables, the Education/Social routine parameter explained over 100% of the variance and was, therefore, removed from the latent variable. Examination of this scale’s results demonstrated that the results were leptokurtotic and examination of the item contents suggest that this scale may not be a reliable measure of child routines. Previous results have also demonstrated low reliability of this scale within the CRQ-P measure ($\alpha = .63$; Wittig, 2005) also indicating that this may not be a reliable indicator of preschool age child routines. The Self-Regulation latent variable CFA suggested adding a residual covariance from Attentional Focusing to Inhibitory Control which was supported by past research suggesting that that these are two primary constructs of behavioral self-regulation (Bater & Jordan, 2017). The results
also suggested removing a low loading item that is theorized to have potentially confusing phraseology (i.e. “sometimes”). Finally, the CFA conducted on the proposed EBP latent variable exhibited significant problems with the majority of the variance being explained by the SDQ scales (i.e., Hyperactivity and Conduct Problems). It is hypothesized that this is because the two measures used, ECBI and SDQ, contain many overlapping items and are highly correlated, indicating indistinct discriminant validity. Consequently, the two SDQ scales were removed and the ECBI was split into an empirically supported tripartite model (Burns & Patterson, 2000; Hukkelberg, 2016).

When CFA fit indices were compared across the latent variable models, RMSEA indices and confidence intervals were generally the same (CI 90% [.07 to .09]), suggesting that low goodness of fit indices may be affected by the lower than desired sample size (Kenny, 2015; Kline, 2016). The remaining fit indices demonstrated good fit for all latent variables with the exception of mediocre CFI and TLI fit indices for the Self-Regulation latent variable model. This may indicate that this measure may not be the most reliable indicator of a young child’s self-regulatory skills. These poor fit index results should be taken into consideration when interpreting the structural models.

Then, observed variable descriptive statistics were examined for implications on subsequent results. Mother’s consistently reported high levels of positive parenting, low levels of negative parenting, high levels of child routines, and low levels of EBP. These results are suspected to have restricted range because of the use of a community sample, as opposed to a clinical sample. This is specifically relevant with regards to base rates reported for EBP in preschool children, reported solely by parents (15-20%; e.g., Graziano et al., 2015).
The ECBI observed variables were also assessed for correlations among previously supported covariate variables (i.e., child sex, child age, child race, coparenting status, and familial income). Interestingly, no covariates were found to be significant and, therefore, were not included in the analyses. This is inconsistent with previous research that indicated that child sex, child race, and income were relevant covariates when considering these variables (Bater & Jordan, 2017; Churchill & Stoneman, 2004; Ferretti & Bub, 2014). Therefore, given past research about the relevance of the controls, the lack of covariates could have an implication on the subsequent interpretations and may be an area for future studies to examine more in depth.

**Structural Equation Modeling Results**

While speculative in nature, the results of the SEM analyses on direct, indirect, and serial mediation effects did not support the hypothesis that the serial mediation model would be the model with the best fit. When the BIC index was considered, interpreted as the best information criterion index to consider in this case due to consideration of sample size and parsimonious model, the indirect effect model, with self-regulation as the mediating variable, demonstrated the model with the best fit. This model remained the model with the best fit, even when the post hoc analysis placing child routines as the mediator was considered. Therefore, it can be assumed that the indirect effect relationship demonstrated in that particular model, explains the relationship between the variables better than a direct effect or serial mediation effect.

**Negative Parenting results based on competing models**

All latent variables (i.e., negative parenting practice, positive parenting practices, child routines, self-regulation, and EBP) were correlated in the expected directions but
did not demonstrate predictive relationships in the hypothesized manner. The indirect effect model indicated that parents who engage in negative parenting practices reported having children with fewer self-regulatory abilities which also resulted in more EBP. This significant mediating path is consistent with the existing literature (Bater & Jordan, 2017), including a few studies that have examined this relationship longitudinally (4.5 years to 13.4 years old; Eisenberg et al., 2005; Valiente et al., 2006; Vazsonyi & Huang, 2010). Notably, those that participated in the longitudinal studies were older than the participants in this study but, given the consistent findings, it is suggested that this relationship is maintained throughout a child’s development. Further, previous studies have reported that preschool children with at-risk or clinical levels of EBP also demonstrated significant self-regulatory deficits (see Graziano et al., 2015; see Hill-Soderlaund & Braungart-Rieker, 2007; Rothbart & Bates, 2006), which is often a target in therapy with young children (Shapiro, 2015; Zhou, Chen, & Main, 2012. Therefore, these results extend this relationship to a community, non-clinical sample. This suggests that negative parenting is an important factor to consider in development of children’s self-regulatory abilities, and in turn, externalizing behavior, among children in the general community, not just clinically identified children. It can also be asserted that negative parenting has the same developmental function across sample furthering the parenting literature.

However, counter to the previous results, no significant relationships were found between negative parenting practices and child routines in any of the direct, indirect, or serial mediation models, other than a negative correlation between the two latent variables (Bater & Jordan, 2017; Sytsma-Jordan & Kelley, 2004; Jordan, Stary, & Barry,
This study’s results suggest that, although these variables are correlated, more negative parenting practices were not associated with fewer child routines when also accounting for positive parenting practices. It also suggests that child routines were not necessary to consider within the negative parenting practices to externalizing behavior relationship. It can be asserted that although a relationship exists between negative parenting and child routines, the relationship between child routines and positive parenting is stronger. Therefore, given the inconsistent results between this study and past research, it is suggested that future research examine this relationship further, potentially examining a wider variety of covariates and examining this relationship independent from positive parenting.

*Positive Parenting results based on competing models*

The serial mediation results indicated that those who endorsed positive parenting practices also endorsed more consistent child routines and self-regulatory abilities exhibited by their young child. This path, however, did not extend to the EBP variable, as predicted. Except for the non-significant path to EBP, these results are consistent with the hypothesis that positive parenting practices promote more consistent and predictable routines which assist in the development of self-regulatory abilities in young children (Bater & Jordan, 2017; Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; Perry, 2005). Based on the high levels of positive parenting practices reported, it can be asserted that, because so many mothers in this sample endorsed high-levels of positive and supportive parenting practices, their children did not demonstrate significant externalizing behaviors resulting in a non-significant relationship to EBP. Again, this is hypothesized to have occurred because of the non-clinical sample obtained. It should be
noted that in Bater and Jordan’s (2017) study, the direct effect of positive parenting to self-regulation was significant, even when considering child routines as the mediator. Although the direct effect of positive parenting to self-regulation was not examined in this study, this is an area for future research to further explain this relationship and identify unaccounted additional mechanisms.

A non-significant path that was counter to the study’s hypotheses was between positive parenting practices and self-regulation in direct and serial mediation models. The only significant relationships found between the two variables were a positive correlation and the previously interpreted indirect effect relationship between positive parenting to self-regulation through child routines. Previous research has supported the relationship between positive parenting and self-regulation (Baumeister, Schmeichel, & Vohs, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Kochanska, Murray, & Harlan, 2000; von Suchodoletz, Trommsdorff, & Heikamp, 2011) with one study supporting this simple mediation path (Bater & Jordan, 2017). Consequently, when the indirect and serial mediation models were analyzed together, these results contribute to the literature by suggesting that a relationship between positive parenting and self-regulation only exists through child routines. This supports the theory that consistent positive parenting practices allow parents to model appropriate behavior as well as scaffold appropriate self-regulatory development through consistent daily routines and activities (Florez, 2011).

Furthermore, as a result of the indirect effect model exhibiting the lowest BIC index, a post hoc indirect effect model was conducted, placing child routines as the mediating variable. Although the original indirect effect model was the model with better goodness of fit and information criterion indices, interesting significant paths were
revealed in this model as well. Positive parenting practices were related to consistent and predictable child routines which were related to lower externalizing behaviors, and the direct effect of positive parenting practices to externalizing behaviors was maintained as well. This is consistent with past research suggesting that there is only a partial mediation relationship between these variables (Sytsma-Jordan & Kelley, 2004) suggesting that, although child routines play a mediating role between positive parenting and EBP, this may not be the only mechanism through which this relationship exists.

*Child routine and self-regulation relationship*

Another important finding from the results of all the models, including the post hoc indirect effect model, was the relationship between child routines and self-regulation. As mentioned, child routines mediated the relationship between positive parenting and self-regulation; however, no relationship was found between child routines and self-regulation in the indirect or post hoc indirect effect models, aside from the positive correlation among the latent variables. Several theories exist about how child routines promote an increase/strengthened self-regulatory abilities whether through practice (Barber & Munz, 2011; McCullough & Willoughby, 2009), predictability (Bronson, 2000; Martin, Razza, & Brooks-Gunn, 2012; Perry, 2005; Taylor, 2011), or habituation, that ultimately requires less self-regulatory resources (Eisenberg & Sulik, 2012; Martin, Razza, & Brooks-Gunn, 2012) but only one examined the temporal order of this relationship (Bater & Jordan, 2017). That study offered support for the temporal order of the mediators found in the serial mediation between negative parenting to EBP through child routines and self-regulation (i.e., the indirect effect was only significant when CR preceded SR), but for the positive parenting serial mediation model, the indirect effect
was significant regardless of the sequence of the mediators. Results of the present study suggest that the relationship between child routines and self-regulation only exists when considering it in the context of positive parenting.

Limitations and Future Directions

Despite some interesting and informative results, this study’s findings should be interpreted with caution due to various limitations. First, this study used a single informant and method of data collection. Previous research has emphasized the importance of including teachers’ perspectives due to results suggesting children behave differently dependent on the setting (Lanza & Drabick, 2011). Future studies should also consider obtaining male parent/legal guardian’s perspective as well. Obtaining father data may provide additional information as paternal parenting practices influence children’s behaviors differently from maternal parenting practices (Aldous & Mulligan; 2002; Gryczkowski, Jordan, & Mercer, 2009; Volling & Belsky, 1992). Further, a more reliable or direct (i.e., performance-based) measure of the child’s self-regulatory skills would be beneficial given the relatively low internal consistency and weak measurement model observed for the child self-regulation variable.

Similarly, another limitation that should be addressed in future studies is the smaller than desired sample. Soper (2015) suggests that the SEM calculator provided the minimum sample size required to detect effects; therefore, it may be posited that more than the minimum amount is required for such a complex model. It is also reported that power analyses, as such, may not take into consideration bias or error and often fail to consider the magnitude of the indirect effect strength, which has resulted in insufficient sample sizes (Wolf et al., 2013). Future studies should look at all of these factors to
ensure inclusion of a sufficient sample size and re-analyze the CFA and SEM models to assess for model fit and then to see if the results are consistent and reproducible. Future studies should also use measures with stronger internal consistency and use a more stringent approach to removing weak items to increase the alpha prior to testing the measurement models for the latent variables.

This study’s results suggested that there may be limitations regarding several measures’ psychometric properties, namely the Education/Social and Religion/Hygiene scales from the CRQ-P and the CBQ-SH measure. The Education/Social scale had to be removed from the CFA model due to model misspecification with the other CRQ-P variables and the Religion/Hygiene scale was not correlated in the expected directions while also demonstrating a low internal consistency score. Both these scales have demonstrated low internal consistency scores in previous studies suggesting for further psychometric research (Wittig, 2005). Similarly, the Self-Regulation CFA model, based on five scales from the CBQ-SH measure, demonstrated lower fit indices than the other CFA models, suggesting that this may be a model with poor fit instead of being completely attributable to the low sample size. This is comparable to the low internal consistency reported in previous studies (Putnam & Rothbart, 2006). Therefore, future studies may want to consider refining this measure and/or including another indicator of self-regulation via parent-report such as the BRIEF-P (Gioia et al., 2003).

Also, this study demonstrated notable differences among maternal caregivers recruited from local daycares/preschools versus those recruited from Amazon’s Mechanical Turk crowdsourcing website. Specifically, those recruited from local daycares/preschools had higher levels of parental education and income, while MTurk
participants were more likely to be a single parent with a female child. Although the aim of the study was to obtain a broad sample to build the literature-base for these relationships, future studies should consider parsing out participants by income and parenting status (Raver et al., 2009), as well as examining the influence of parental self-regulation on these proposed relationships (Hamilton, Matthews, & Crawford, 2015). Research suggests that those with significant stressors expend large amounts of resources towards managing their high stress levels, resulting in a diminished amount of resources that can be allocated towards self-regulation (Eisenberg & Sulik, 2012; Martin, Razza, & Brooks-Gunn, 2012; see Raver et al., 2009). It can be posited that those with low income levels and no co-parent may have higher stress levels resulting in weakened resources that may have an impact on the parent’s own ability to self-regulate. This may result in maladaptive modeling of self-regulation and may also have an impact on the parents’ ability to engage in regular positive parenting practices and enforcing consistent daily child routines (Bunford et al., 2015). Future research should also examine the role of the family’s identified ethnicity and culture on the child’s self-regulation. Previous research has suggested that expectations and priorities differ across cultures which may influence how self-regulation may be perceived and what behaviors are emphasized (Tardif, Wang, & Olson, 2009). In addition to parsing out the aforementioned demographic variables, future research may want to investigate this difference found between the oppositional defiant behavior differences noted in the different recruitment method, particular given the important role this dependent variable plays in these in these analyses.

Lastly, all the variables of interest were obtained within a similar time period. When considering a serial mediation model, ideally the variables are recorded at several
points over the course of time to identify the temporal effects (Kline, 2016). Given the limited research on the sequence of these variables, this study examined cross-sectional data to provide preliminary results. Future studies should focus on utilizing a longitudinal design when attempting to examine this particular relationship. Future studies should also consider examining the effects of interventions that focus on improving the structure and consistency of a child’s daily routine and the potential impact on a child’s self-regulation and EBP. Similarly, interventions that promote the expansion of self-regulatory resources and capabilities within children should be examined for the potential effects on the EBP of children between 3 to 5 years old.

Conclusion

Given the prevalence and future implications of preschool externalizing problems, the current study attempted to extend upon the research of the established relationship between parenting practices and externalizing behavior problems through potential mediating variables (i.e., child routine and self-regulation) that may affect the emergence and exacerbation of these difficulties. Direct, indirect, and serial mediation models were compared to one another and the model with the best fit for these variables, given the data, was the indirect effect. This model supported the mediating role of self-regulation between the relationship of negative parenting and externalizing behavior problems. The other models were also examined for their significant and non-significant findings. An important significant result was found for the mediating role of child routines on the extant relationship between positive parenting and self-regulation. Future studies should examine these relationships further using longitudinal design, more participants for the performance-based assessment, and multiple informants such as teachers and fathers.
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 17031702
PROJECT TITLE: Structural Model of Child Routines and Self-Regulation in Relation to Parenting and Externalizing Behavior Problems in Young Children
PROJECT TYPE: New Project
RESEARCHER(S): Lovina Bater
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 05/05/2017 to 05/04/2018

Lawrence A. Hosman, Ph.D.
Institutional Review Board
APPENDIX B – Parent Consent Form

PARENT INFORMED CONSENT FORM

Title of Research Project: Factors Related to Self-Regulation and Behavior of Preschool Children

Project Director: Sara Jordan, Ph.D.
Department of Psychology
University of Southern Mississippi
(601) 266-4587

Purpose: We, the researchers and the University of Southern Mississippi, invite you, as a female parent/legal guardian of a three- to five- year old, to participate in a research project regarding potential factors that may influence your child’s self-regulation and behavior. We also invite you to provide consent to allow us to obtain performance-based information from your child regarding their self-regulatory abilities and to obtain information from your child’s teacher about your child’s self-regulation and behavior. The information we obtain will assist in research about the relationship between parenting strategies, child routines, and child self-regulation, and child behaviors.

Procedures: As a participant for this research project, you will be asked to complete a few questionnaires about your own history (i.e., age, ethnicity, annual income) and parenting strategies along with your child’s personal information (i.e., age, ethnicity, gender), abilities, and behaviors. These questionnaires should take about less than an hour to complete. You will be given the opportunity to decide whether you want to complete this survey online through a provided link, or on a hard copy version of the survey. Quality assurance checks will be used to make sure that participants are reading each question carefully and answering thoughtfully. Participants who do not pass these checks will NOT receive the incentive for completing the study.

Also, with your consent, your child’s teacher will be asked to complete a few questionnaires about your child’s self-regulation and behavior. Finally, with your consent, your child will also participate in a short, performance-based task to assess his or her self-regulatory abilities. Your child’s participation will be digitally recorded in order to ensure accurate coding of his or her responses. These recordings will be viewed and coded by a trained research assistant. Digital records will be stored on a password protected drive and kept in a locked cabinet until the data have been analyzed. Upon completion of the data coding, the video recordings will then be immediately deleted.

If you would like more information about the procedures used, or any other questions regarding this research project, please contact Sara Jordan, Ph.D. at (601) 266-4587.

Potential Risks: Some caregivers may experience distress from answering questions regarding their parenting practices and/or their child’s behaviors. Children may also
experience mild distress from performance tasks that require sustained mental effort. However, this distress is not expected to be greater than that encountered in every day life or to have lasting effects. If needed, the researchers will provide female parents/legal guardians with referral information to local mental health resources for themselves and their child.

**Potential Benefits:** As an incentive for completing study questionnaires, you will be given a $10 gift card to a local retail store upon completion. After completion of the performance-tasks, your child will be offered a toy from a treasure box for his or her participation. Additionally, results obtained from the information provided by you, along with other participants, will assist in the development of further understanding the relationship that surrounds parenting strategies, child routines, and child self-regulation, and child behaviors. A better understanding of these factors will help with the design and implementation of future research questions and interventions.

**Voluntary Participation:** Participation in this research project is entirely voluntary. You may withdraw from the research project at any time or skip a particular item and will not be penalized for doing so. However, you must complete most of the items in order for your data to be included in the study and to be eligible to receive a gift card.

**Confidentiality:** Any and all information that is provided will be kept strictly confidential. Any physical data (consent form, questionnaire completed by paper-and-pencil packets) obtained will be kept in a locked filing cabinet in the faculty advisor’s laboratory. Only those who are directly involved in the research project will be given access to the secured filing cabinet. Electronic data (questionnaires completed online) will be kept separated from names and contact information after all data collection for that participant is completed. Names and contact information will be saved in a separate password protected document that only those who are directly involved in the research project will be given access to. When the results are reported, no specific or identifying information will be provided that could result in being able to identify your personal responses.

The only time that information will be required to be released about a participant without his or her consent would be for the following reasons: if there is a report of suspected abuse of a child, elder, or disabled person or if there is a report that someone is in imminent danger of harming him- or herself or others.

This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects following federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406, (609) 266-6820.
I HAVE BEEN FULLY INFORMED OF THE ABOVE-DESCRIBED PROCEDURES WITH THEIR POSSIBLE BENEFITS AND RISKS, AND I CONSENT TO MY COMPLETING BRIEF QUESTIONNAIRES, MY CHILD’S PARTICIPATION IN PERFORMANCE-BASED TASKS, AND THE CHILD’S TEACHER COMPLETING BRIEF QUESTIONNAIRES.

I FURTHER CERTIFY THAT I HAVE THE LEGAL AUTHORITY TO PROVIDE CONSENT FOR THE PARTICIPATION OF MY CHILD (IF UNDER AGE 18) AND PROVIDE CONSENT FOR TEACHER REPORT TO BE OBTAINED.

Signature ___________________________ Date ____________

Witness ______________________________ Date ____________
APPENDIX C – MTurk Parent Consent Form

PARENT INFORMED CONSENT FORM

Title of Research Project: Structural Model of Child Routines and Self-Regulation in Relation to Parenting and Externalizing Behavior Problems in Young Children

Project Director: Sara Jordan, Ph.D.
Department of Psychology
University of Southern Mississippi
(601) 266-4587

Purpose: We, the researchers and the University of Southern Mississippi, invite you, as a female parent/legal guardian of a three- to five- year old, to participate in a research project regarding potential factors that may influence your child’s self-regulation and behavior. The information we obtain will assist in research about the relationship between parenting strategies, child routines, and child self-regulation, and child behaviors.

Procedures: As a participant for this research project, you will be asked to complete a few questionnaires about your own history (i.e., age, ethnicity, annual income) and parenting strategies along with your child’s personal information (i.e., age, ethnicity, gender), abilities, and behaviors. These questionnaires should take about less than an hour to complete. Based on testing and norming of the study completed without distractions, these questionnaires should take about 40 minutes to complete. Participants will be paid $4.70. Quality assurance checks will be used to make sure that participants are reading each question carefully and answering thoughtfully. Participants who do not pass these checks will NOT receive the incentive for completing the study. If you would like more information about the procedures used, or any other questions regarding this research project, contact Sara Jordan, Ph.D. at (601) 266-4587.

**INCLUSION/EXCLUSION CRITERIA**
In order to participate in this study, you must be at least 18 years old and be the female primary caregiver for a child between the ages of 3 to 5, and live in the United States. Your child must not have been diagnosed with a global developmental delay or autism spectrum disorder.

Potential Risks: The risks of your participation are minimal. Some caregivers may experience distress from answering questions regarding their parenting practices and/or their child’s behaviors. However, this distress is not expected to be greater than that encountered in everyday life or to have lasting effects. If there are specific questions that you do not feel comfortable answering, you are welcome to skip those questions. Skipping such questions will not affect your compensation. If you become so uncomfortable that you wish to discontinue, you may do so by closing your browser.
window at any time. Payment, however, is contingent upon a good faith effort and completion of the study (minus specific questions you may be uncomfortable answering). Payment is also contingent on passing the quality assurance checks to detect honest and accurate completion.

**Potential Benefits:** The researchers will establish a Paypal account and Amazon automatically pays participants from this account. As an incentive for completing the study, participants will be paid $4.70. Results obtained will assist in the development of further understanding of the relationship that surrounds parenting strategies, child routines, and child self-regulation, and child behaviors. A better understanding of these factors will help with the design and implementation of future research questions and interventions.

**Voluntary Participation:** Participation in this research project is entirely voluntary. You may withdraw from the research project at any time or skip a particular item by closing the browser window or closing the program to withdraw from the study. You may also skip certain questions if you do not feel comfortable answering them.

Confidentiality: This consent form will be signed electronically via a checkbox at the bottom of the screen if you choose to participate in the study. You will be credited for your participation once the survey has been carefully and thoughtfully completed. Your MTurk ID will be entered into the database to allow the research team to ensure that individuals who provide survey codes indicating that they completed the survey actually did so and provided valid answers in a reasonable timeframe. No other personally identifying information will be recorded.

When the data are used in research, no specific or identifying information will be provided that could result in being able to identify your personal responses. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. The only time that information will be required to be released about a participant without his or her consent would be for the following reasons: if there is a report of suspicion of abuse to a child, elder, or disabled person or if there is a report that someone is in imminent danger of harming him- or herself or others.

**Alternative Procedures:** MTurk provides a large number of surveys at any given time. Individuals can freely choose to participate in these other surveys.

This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects following federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406, (609) 266-6820.
APPENDIX D – Parent Demographics Form

PARENT DEMOGRAPHICS AND BACKGROUND INFORMATION FORM

Directions: These forms are for female caregivers with a child between 3 and 5 years old. You must be at least 18 years old to complete these forms. If you child has been diagnosed with a developmental disability or autism spectrum disorder or if your child does not attend preschool or daycare, please stop and notify the researcher. There are no right or wrong answers. Please answer as honestly as possible. If there is an item that you do not wish to answer, you may skip it and move to the next one. Quality assurance checks will be used throughout the survey to make sure that participants are reading each question carefully and answering thoughtfully. Participants who do not pass these checks will NOT receive the incentive and their child will not be permitted to participate in the remainder of the study.

Your child’s name: _________________________________________________

Your name (maternal caregiver): ______________________________________

Phone Number: _____________________________________________________

Child’s Date of Birth: _____________ Child’s Age: ______________

Child’s Gender (Circle one): Male Female

Child’s Race (Circle one):
American Indian/Alaska Native Asian Black/African American
Native Hawaiian/Other Pacific Islander White Multiracial

Other (please explain): _______________________________________________

Please indicate whether or not your child is Hispanic:
Hispanic/Latino ________ Not Hispanic/Latino __________

Child’s Grade (circle one):
Pre-K3 Pre-K4 Other (please specify) __________________________

Child’s Teacher: ________________________________________________

Child’s School: _________________________________________________
Are you the child’s legal guardian or parent? YES NO

Your relation to the child: ______ Biological parent
______ Step parent
______ Adoptive parent
______ Grandparent
______ Legal guardian (e.g., foster parent)
______ Other (please explain): ______________________

Your Age: __________

Your Gender (circle one): Male Female

INFORMATION ON PRIMARY FEMALE CAREGIVER OF CHILD

Age: ______

Relation to child: ___ Biological parent
___ Step parent
___ Adoptive parent
___ Legal guardian
___ Other (please explain): ______________________

Current employment: ___ None, unemployed
___ None, disabled
___ Yes, part-time
___ Yes, full-time

Place of employment: ____________________________

Occupation/ job position (please be very specific e.g., cashier at a supermarket, high school teacher): ____________________________

Highest grade completed in school (mark one):
______ 6th grade or less
______ Some college (at least 1 year)
______ Junior high school (7th, 8th, 9th grade) or specialized training
______ Some high school (10th, 11th grade)
______ Standard college or university graduate
______ High school graduate
______ Graduate professional degree (Master’s, Doctorate)
INFORMATION ON PRIMARY MALE CAREGIVER OF CHILD - If no male caretaker in the home, please circle here: N/A (then go to “parental and family status” section)

Age: ________

Relation to child: ___ Biological parent
___ Step parent
___ Adoptive parent
___ Legal guardian
___ Other (please explain):________________________________

Current employment: ___ None, unemployed
___ None, disabled
___ Yes, part-time
___ Yes, full-time

Place of employment: _______________________________________

Occupation/ job position (please be very specific e.g., cashier at a supermarket, high school teacher):________________________________________

Highest grade completed in school (mark one):
_____ 6th grade or less
_____ Junior high school (7th, 8th, 9th grade)
_____ Some high school (10th, 11th grade)
_____ High school graduate
_____ Some college (at least 1 year) or specialized training
_____ Standard college or university graduate
_____ Graduate professional degree (Master’s, Doctorate)

PARENTAL AND FAMILY STATUS

Marital status of child’s biological parents: _____ Single (never married)
_____ Currently married
_____ Currently living together (not married)
_____ Separated
_____ Divorced
_____ Widowed

Are you currently: ___ raising your child alone?
___ raising your child with a husband/wife, partner/significant other?
___ raising your child with the help of family members?
List all people currently living in the household:

<table>
<thead>
<tr>
<th>Initials of person</th>
<th>Relationship to Child (e.g., mother, sister)</th>
<th>Age</th>
</tr>
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Taking into account all sources of income (wages, interest, government assistance, child support, etc.), please estimate the total family income on a yearly basis BEFORE taxes.

(This is for research purposes ONLY. No identifying information will be listed with these data)

(Enter corresponding Number from column at right) 

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>Earns no income/dependent on welfare</td>
</tr>
<tr>
<td>1</td>
<td>Earns less than $10,000</td>
</tr>
<tr>
<td>2</td>
<td>$10,000-$14,999</td>
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<tr>
<td>3</td>
<td>$15,000-$19,999</td>
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<tr>
<td>4</td>
<td>$20,000-$24,999</td>
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<td>5</td>
<td>$25,000-$29,999</td>
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<td>$30,000-$34,999</td>
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<td>$35,000-$39,999</td>
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<td>$40,000-$49,999</td>
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<td>9</td>
<td>$50,000-$59,999</td>
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<td>10</td>
<td>$60,000-$74,999</td>
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<tr>
<td>11</td>
<td>$75,000-$99,999</td>
</tr>
<tr>
<td>12</td>
<td>Earns $100,000 or more</td>
</tr>
</tbody>
</table>

Are you receiving any form of government assistance (e.g. AFCD, SSI)?

___ YES  ___ NO

(This is for research purposes ONLY. No identifying information will be paired with these data)

Who is the primary wage earner in the family?

___ Mother
___ Father
___ Both equally
___ Other (please explain): _______

Primary language spoken in the home:

___________________________________________

Other languages spoken in the home:

____________________________________________
Does your child have an autism spectrum disorder? ______ YES ______ NO

Has your child been diagnosed with a developmental delay? _____YES _____ NO
If yes, please describe:_____________________________________________________

Has your child ever received services from a counselor or psychologist for behavior problems? _____ YES _____ NO
If so, has your child been diagnosed with: _____ Attention Deficit/ Hyperactivity Disorder
                                           _____ Oppositional Defiant Disorder
                                           _____ Other (please explain):
                                           ______________________________________
If yes, indicate dates of service: Start Date: ___________ End Date: ___________

*The lab would like to keep a record of contact information to inquire about participation in future studies. If you would like to be included in the database of research participants and to be contacted to receive information about future studies, please provide your contact information below. This information will NOT be stored with your responses to the questions for the current study.

I would like to be contacted about future studies in the lab for which I or my child may qualify: YES_______ NO_______
If yes:

    E-mail Address: ________________________________
    Telephone Number: ____________________________
    Mailing address: ______________________________
    Street address: ________________________________
    City, State, Zip code: __________________________

How would you like to receive your gift card?

    □ Sent to my child’s school

    □ Email (email address: ___________________________)

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REFERENCES


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