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## **Child Routines and Self-Regulation as Mediators of Parenting Practices and Externalizing Problems in Preschoolers**

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CHILD ROUTINES AND SELF-REGULATION AS MEDIATORS OF PARENTING  
PRACTICES AND EXTERNALIZING PROBLEMS IN PRESCHOOLERS

by

Lovina Rose Bater

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Submitted to the Graduate School  
and the Department of Psychology  
at The University of Southern Mississippi  
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for the Degree of Master of Arts

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December 2015

## ABSTRACT

### CHILD ROUTINES AND SELF-REGULATION AS MEDIATORS OF PARENTING PRACTICES AND EXTERNALIZING PROBLEMS IN PRESCHOOLERS

by Lovina Rose Bater

December 2015

Studies clearly indicate that parenting practices relate to child externalizing behaviors, although the mechanisms underlying this relation are less well understood. Researchers suggest that daily routines are one way through which parenting practices relate to externalizing behaviors, allowing children to regulate their thoughts, emotions, and behaviors accordingly, potentially promoting development of appropriate self-regulatory behaviors. Self-regulation is also a possible route through which child routines inversely relate to externalizing behaviors. These relationships have been tested in school-age and older children, yet self-regulatory abilities are known to develop during the preschool period. This study examined child routines and self-regulation as serial mediators of the relations between positive and negative parenting practices (separately) and child externalizing problems among preschool children. Participants included 166 maternal caregivers of preschool children who completed a self-report measure of their parenting practices and parent-report measures of their child's daily routines, self-regulation, and externalizing behaviors. Results demonstrated that both child routines and self-regulation are significant mechanisms through which negative and positive parenting practices relate to externalizing problems in preschoolers, although the temporal sequencing is only upheld in respect to negative parenting. These findings suggest that child routines play a critical role in the development of self-regulation among preschool children, which, in turn, are inversely associated with externalizing behaviors.

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## CHAPTER I

### INTRODUCTION

Due to high prevalence rates, externalizing problem behaviors in young children have been a topic of concern among researchers for many years. More recently, the focus has moved towards examining the mechanisms through which externalizing problem behaviors develop, are maintained, and the risk and protective factors that may surround them (i.e., Barnes, Boutwell, Beaver, & Gibson, 2013). Looking at these types of models have become important in seeing the differences in the developmental trajectories of adaptive versus maladaptive behaviors in these children.

It has become well established that positive parenting practices are associated with fewer child externalizing problems and vice versa (Clerkin, Marks, Policaro, & Halperin, 2007; Koblinsky, Kovalanka, & Randolph, 2006; Stormshak, Bierman, McMahon, & Lengua, 2000); however, the mechanisms through which parenting practices impact child behavior problems are less understood. It has been demonstrated that consistent child routines mediate the relationship between negative parenting practices and child externalizing behaviors (Sytsma-Jordan & Kelley, 2004). It is also believed that consistent child routines assist in the development of self-regulatory skills in preschoolers (Martin, Razza, & Brooks-Gunn, 2012; Perry 2005; Taylor, 2011; Wittig, 2005). In preschoolers, effortful control is typically the dimension of self-regulation that is examined (Rothbart & Bates, 2006), as it is thought to play a fundamental role in the child's behavior and emotion functioning (Eisenberg et al., 2005). Even though effortful control is alleged to have genetic origins imbedded in the child's temperament, many theorists have hypothesized and conducted longitudinal studies that demonstrate parenting practices' influence on the development of effortful control over time

(Goldsmith, Buss, & Lemery, 1997; Rothbart & Bates, 2006). Furthermore, child self-regulation has consistently been found to be associated with externalizing behavior problems (Barnes et al., 2013; Caughy, Mills, Owen, & Hurst, 2013; Eiden, Edwards, & Leonard, 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Valiente et al., 2006) with poorer self-regulation being a predictor of future increases in externalizing behaviors (Hardaway, Wilson, Shaw, & Dishion 2012).

However, to date, no known study has examined the linkage between consistent parenting practices, consistent child routines, self-regulation, and externalizing behavior problems. It is plausible that frequent and consistent child routines aid in the development of self-regulatory skills, which may serve to inhibit negative behaviors such as acting out, aggression, noncompliance, and hyperactivity/impulsivity. Thus, this study aimed to test a serial mediation model with child routines and child self-regulation as mediators of the relation between parenting practices and child externalizing behavior problems.

### Parenting Practices

Given the lack of maturation and independence of preschoolers, parents play a very early and important role in child development. For years, researchers looked to Baumrind's (1971, 1991) tripartite model on parenting styles as a source for understanding how parenting relates to aspects of child development, such as child behavior problems. This model focused on parenting styles, referring to their general attitudes and the emotional climate that encompasses their overall approach to parenting, instead of specific parenting practices (Darling & Steinberg, 1993). Baumrind's model consisted of three primary styles (authoritarian, permissive, and authoritative parenting) with later researchers including uninvolved or neglectful parenting as an additional

parenting style (Baumrind, 1971, 1991; Darling & Steinberg, 1993; Maccoby & Martin, 1983).

Although Baumrind's model of parenting styles has been cemented into the field of child development and has been the focus of a great deal of parenting research, the associations between parenting styles and child outcomes cannot explain why or how these relationships exist (Darling & Steinberg, 1993). Parenting practices may have a more direct effect on specific child behaviors and aspects of development, and may function as the mechanism through which parents directly influence the development of a child's behavior.

Parenting practices have been referred to as "specific, goal-directed behaviors through which parents perform their parental duties" (Darling & Steinberg, 1993, p. 488). Consistent with the theory that parenting practices more directly influence child behaviors, Patterson (1982) and Patterson, DeBaryshe, and Ramsey (1989) developed the Coercive Family Process Model, an empirically derived developmental model suggesting that child noncompliance and aggressive behaviors may develop through reduced parental involvement (i.e., positive parenting practices) and inconsistent parental discipline and monitoring (i.e., negative parenting practices) as well as through negative reinforcement of coercive parent-child interactions (Patterson et al., 1989). This model has been central to our understanding of parenting practices and child behavior problems and with its development, parenting practices have been broadly conceptualized as falling into two dimensions: positive parenting (i.e., warmth, involvement) and negative parenting (i.e., poor monitoring/supervision, inconsistent discipline, corporal punishment). Studies have demonstrated that both components relate to elementary-aged child behaviors (Darling & Steinberg, 1993; Duncombe, Havighurst, Holland, &

Franking, 2012; Eisenberg et al., 2005; Gryczkowski, 2010; Shelton, Frick, & Wootton , 1996; Sytsma-Jordan & Kelley, 2004) even after controlling for other important, confounding variables such as paternal depression and marital conflict (Gryczkowski, 2010).

Negative parenting, punitive parenting, and their underlying components (i.e., inconsistent discipline, corporal punishment) have consistently demonstrated correlations with increased levels of child behavior problems, such as externalizing behavior problems (Duncombe et al., 2012; Gryczkowski , Jordan, & Mercer, 2009; Patterson et al., 1989; Shelton et al., 1996; Stormshak et al., 2000; Sytsma-Jordan & Kelley, 2004). In an Australian study, Duncombe and colleagues (2012) showed that parents' inconsistent discipline, negative emotional expressiveness and mental health, were the strongest correlates of child disruptive behavior problems and emotion regulation difficulties among 5 to 9 year old children with serious behavioral problems. Moreover, Stormshak and colleagues (2000) demonstrated that parent report of punitive parenting is correlated with disruptive child behaviors, with physically aggressive traits among parents being associated with more child aggression.

With respect to positive parenting, Stormshak and colleagues (2000) also examined levels of warm involvement and found that the lower levels were more salient in parents who endorsed higher levels of oppositional behaviors in their early elementary school children. Similarly, positive parenting has also related to lower levels of externalizing behaviors in other studies (Gryczkowski et al., 2009; Koblinsky et al., 2006). Specifically, Koblinsky and colleagues (2006) demonstrated that positive parenting, along with lower levels of maternal depression in African American mothers, were related to both child externalizing and internalizing behaviors. It has been suggested

that positive parenting may aid in the development of children's self-regulation abilities, which, in turn, make children less likely to display externalizing behavior problems (Eisenberg et al., 2005). Positive parenting has also been associated with positive child outcomes, such as child routines (Jordan, 2003) and child self-regulation (Eisenberg et al., 2005).

### Child Routines

In much of the recent literature, child routines have commonly been 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). Daily events such as getting ready in the morning, brushing one's teeth before bed, or washing hands before mealtime are just three simple examples of events that may compose a child's daily routines. “Predictable” is a key word that has been theorized as a reason that routines are so essential to children, and refers to maintaining consistency of such daily events. Moreover, the consistency of the factors that surround the actual routines (i.e., the location of the routine, caregiver(s) overseeing the actions of the routine, sequence of the activities comprising the routine overall, consequences of not following the routine) have also been thought to speak to the quality of the routine, with more consistency resulting in higher quality and vice versa (Henderson & Jordan, 2009; Wildenger, McIntyre, Fiese, & Eckert, 2008; Wittig, 2005).

Although the literature on the importance of routines in young children is growing rapidly, very few studies have examined the relationship and mechanisms that surround daily routines in preschoolers. Several popular parenting books, magazines, and websites have suggested that creating predictable, organized, and consistent child routines at an

early age enhances a child's feelings of safety and security, teaches healthy habits which can lead to fewer health problems, facilitates smoother days by easing daily transitions and fosters independence, responsibility, and self-control (Eisenberg, Murkoff, & Hathaway, 1996; Hook-Sopko, 2012; Medoff, 2013; Nelson, Erwin, & Duffy, 2007; Raising Children's Network; 2012). Research has also shown that having opportunities to practice expected behaviors through daily routines has also been shown to support a feeling of competence in young children (Bronson, 2002; George & Soloman, 2008), along with creating and maintaining appropriate child behaviors (Fiese, 2002; Harris et al., 2013). Young children are acutely aware of the everyday rhythms that occur within family routines and are eager to participate (Spagnola & Fiese, 2007). Becoming involved early on may give children the ability to develop and encourage the skills that are associated with becoming autonomous. Furthermore, Sytsma et al. (2001) proposed a behavioral theory that routines may act as a setting event for children's compliance by providing consistent and predictable, environmental cues as to how they should conduct themselves throughout the day. For example, those who routinely complete activities (i.e., at a regular time, place, and in a typical sequence) may be more likely to comply with directions and have an increased likelihood of performing that behavior in the future (Staub, 1979).

It has often been suggested that routines ease transitions in children, which is especially important in preschoolers due to the important upcoming transition they will be faced when entering a more formal and academically-structured kindergarten setting, as opposed to a more play-oriented preschool environment (Wildenger et al., 2008). The transition from preschool to kindergarten has been deemed an important developmental milestone in a child's life and has been stated as a time where a child's daily routine will

be likely to change considerably. However, Wildenger and colleagues (2008) have argued that having previous predictable and organized routines during preschool may alleviate some of the stress that is associated with this potentially disruptive and challenging transition. They hypothesize that this may appropriately prepare the upcoming kindergartener to meet the demands of their newly structured environment, granted their routines in preschool were consistent. Given that successful transitions during this time have been identified as important predictors for later academic and social development (Hamre & Pianta, 2001), this demonstrates another important reason to study the daily of routines of preschoolers, in particular.

#### Parenting Practices and Child Routines

Engaging in daily routines has frequently been suggested to be an extension of positive parenting practices (Koblinsky et al., 2006; Prine, 2012; Wittig, 2005). Although some researchers rationalize that routines themselves may not directly cause some of the developmental outcomes they have been associated with, Spagnola and Fiese (2007) assert that appropriate routines are linked with other mechanisms such as parenting efficacy and behavioral monitoring. The relationship between parental efficacy and routines is looked at as a transactional model: parents who participate in daily routines with their child should eventually become more familiar with the tasks encompassed in their daily routines, leading to an increased likelihood of consistency and ease in the child's performance of the routines. Moreover, parents who have that sense of efficacy in consistently carrying out routines may also be better able to monitor their child's behaviors that are associated with healthier activities and less risky behaviors on part of the child (Furstenberg, Cook, Eccles, Edler, & Sameroff, 1999; Spagnola & Fiese, 2007).

Additionally, parents who utilize daily routines have been purported to have more organized and less chaotic child care environments (DeMore, Adams, Wilson, & Hogan, 2005), along with supporting psychological and physical health and adjustment of all members within the family constellation, particularly the child (Fiese, et al., 2002; George & Soloman, 2008). In school-aged children, parenting practices' impact on externalizing problems have actually been shown to be partially mediated through child routines (Sytsma-Jordan & Kelley, 2004; Jordan, Stary, & Barry, 2013). Additionally, Jordan (2003) examined school-aged children (6 to 12 years old) and demonstrated that positive parenting practices were significantly related to child routines, whereas negative parenting practices had a significant negative relation. It was also found that these child routines accounted for more variance above and beyond demographic variables or parenting practices, suggesting the importance of looking at both variables when considering externalizing behaviors (Sytsma-Jordan & Kelley, 2004); however, this relationship needs to be further examined in preschool children.

Researchers have affirmed that routines are an aspect of parenting behaviors that serve as a protective factor with young children, especially against environmental stressors (Kliewer & Kung, 1998; Wildenger et al., 2008), and may protect against developing a disruptive, externalizing behavior disorder (Lanza & Drabick, 2011). Specifically, Lanza and Drabick (2011) examined family routines in relation to child externalizing behavior among minority children. Children were interviewed regarding their family routines and their parents and teachers completed rating scales measuring their symptoms of hyperactivity/impulsivity and oppositional defiant disorder (Lanza & Drabick, 2011). Using hierarchical regression analyses, child-reported family routines attenuated the relationship between teacher-reported child hyperactivity/impulsivity and

teacher-reported symptoms of oppositional defiant disorder. These results suggest that having higher levels of family routines may provide impulsive children the ability to learn coping strategies that may assist in decreasing their oppositional defiant symptoms at school, as well as provide them with predictable consequences they can learn to work around.

Furthermore, researchers have also found that child routines have also been negatively associated with internalizing and externalizing behaviors among school age children with ADHD (Harris et al., 2013; Taylor, 2011). More specifically, less frequent household routines significantly predicted parental report of higher levels of child internalizing behavior; whereas, less frequent household, discipline, and homework routines uniquely predicted higher parental endorsement of child externalizing behavioral problems (Harris et al., 2013).

Thus, maintaining a consistent, predictable, and structured environment, as provided by daily routines, has been shown to be associated with less impulsivity, aggressive and oppositional behaviors, and tantrums (Koblinsky et al., 2006; Lanza & Drabick, 2011). Lanza and Drabick (2011) suggest the relationship exists because, with consistent routines, children are able to associate their behaviors to consequences more frequently, aiding coping strategy development. Conversely, it has been hypothesized that children consistently seek environmental predictability and some may do so through oppositional behaviors despite aversive parental responses (Wahler & Dumas, 1987; Wittig, 2005), consequently contributing to difficult child behavior (DeMore et al., 2005). Therefore, it has been hypothesized and repeatedly demonstrated that higher levels of child externalizing behaviors are associated with lower levels of routines, therefore less consistent, predictable, and structured environments, and vice versa (Harris et al., 2013;

Henderson, Barry, Bader, & Jordan, 2011; Jordan, 2003; Koblinsky et al., 2006; Lanza & Drabick, 2011; McLoyd, Toyokawa, & Kaplan, 2008; Prine, 2012). It has also been suggested that the inverse relation between child routines and externalizing behavior may exist because child routines create structure and predictability in a child's life that may assist in the child's development of appropriate self-regulatory skills, through which, children learn to regulate their emotions and behaviors (Bronson, 2000; Martin et al., 2012; Perry 2005).

### Self-Regulation

Although numerous researchers have agreed upon the importance of researching the early development of self-regulation because of its many practical and theoretical implications (Baumeister, Schmeichel, & Vohs, 2007; Kochanska, Coy, & Murray, 2001), there is lack of consensus about the broad definition and the specific subcomponents that make up this construct. Many definitions focus on the controlling attention, planning, and inhibiting or initiating behaviors that are aimed at assisting in the completion of a goal (Mischel & Ayduk, 2004) whereas others focus more on the effortful cognitions, affect, and/or behaviors that are altered to reach a desired standard (Baumeister et al., 2007; Baumeister & Vohs, 2004). The complexities involved in making a single definition stem from the relevance of the role of self-regulation according to different theoretical perspectives (McClelland & Cameron, 2012). For example, from the cognitive perspective one would be more focused on the executive functioning aspect of self-regulation whereas from the behavioral perspective, as is the emphasis of this study, one may focus on the effortful control aspect (Eisenberg et al., 2010; McClelland & Cameron, 2012). Given the emphasis on behavior in this particular study, how one effortfully controls attention and initiates and inhibits behaviors to

complete a specific goal or activity will be the way self-regulation is assessed (Mischel & Ayduk, 2004).

Although there are broad and varied ways to conceptualize self-regulation, many researchers have conceptualized self-regulation as having two different components, hot and cool regulatory processing systems, based on areas of the brain the components are theorized to tap into (e.g., Bassett, Denham, Wyatt, & Warren-Knot, 2012; Eisenberg et al., 2010; Razza, Bergen-Cico, & Raymond, 2013; Rothbart & Bates, 2006; Willoughby, Kupersmidt, Voegler-Lee, & Bryant, 2011). Dividing self-regulation into two components guards against this oversimplification leading to more precise thinking and explanations about the faculties responsible for the different self-regulatory actions. For the present study, we focused specifically on the concept of hot processing systems given the theoretical relationships with the aforementioned variables.

The hot regulatory processing system is the aspect of self-regulation that enables children to regulate their attention and behavioral responses to emotionally-charged information or situations (Bassett et al., 2012; Rothbart & Bates, 2006). It is involved in regulating anger, attentional shifting, inhibitory control, and activation control that is characterized by effortful control and is measured by behaviors and tasks encompassed in the effortful control concept (e.g. Bassett et al., 2012; Rothbart & Bates, 2006). This system is rooted in the orbitofrontal cortex and the posterior anterior cingulate cortex with connections to the limbic system, which explains the input of emotions (e.g., Bassett et al., 2012; Eisenberg et al., 2010; Willoughby et al., 2011).

### *Effortful Control*

Temperament refers to individual differences in emotional reactivity and regulation that has a psychobiological basis and is inherent to the individual, but can also

be altered based on the environment and maturation (Bridgett, Oddi, Laake, Murdock, & Bachmann, 2013; Eisenberg & Sulik, 2012; Rothbart & Bates, 2006). Effortful control is the dimension of temperament underlying self-regulation, or the self-regulatory aspect of temperament, and is typically defined as the ability to voluntarily perform a subdominant response while inhibiting a dominant response (Bridget et al., 2013; Eisenberg & Sulik, 2012; Kochanska, Murray, & Harlan, 2000; Rothbart, Ahadi, Hershey, & Fisher, 2001; Rothbart & Bates, 2006). Therefore, when studying self-regulation in early childhood specifically, effortful control is typically the subcomponent that is examined, falling under the hot processing system (Rothbart & Bates, 2006).

As the concept of effortful control is studied, it is conceptually thought of as the ability to focus attention and to modulate behaviors when deemed necessary (Bridget et al., 2013). Effortful control is often comprised of three components: activation control, inhibitory control, and attention shifting (Eisenberg et al., 2010; Eisenberg & Sulik, 2012). Activation control is defined as the capacity to activate or perform an action when there is a stronger inclination to do the opposite behavior. Inhibition control is framed by the idea of being able to inhibit inappropriate behaviors. Lastly, attention shifting is defined as the ability to shift and focus attention when needed. In addition, the involvement of certain executive functioning skills, such as information integration and planning into their conceptualization of effortful control, may be included in the conceptualization.

Razza and colleagues (2013) detail an example of effortful control as a child suppressing his dominant urge to sneak a peek at a surprise gift by performing the subdominant response of waiting until an adult grants permission. As we learn and progress, effortful controlled behaviors become automatic, yet can also be subjected to

conscious control when needed (Eisenberg & Sulik, 2012). Eisenberg and Sulik (2012) use the analogy of driving a car as an example of a situation where effortful control that is typically automatic can come under conscious awareness. For the experienced driver, driving is more of an automatic activity; however, in certain circumstances, such as bad weather or traffic, the driver becomes much more aware and conscious of his/her surroundings, resulting in a more conscious effort. The same can be said for modulating attentional, behavioral, and emotional processes that are typically automatic but can be subjected to effortful control.

#### *Importance of Self-Regulation in Early Childhood*

Early childhood effortful control has noteworthy implications for future moral development (Kochanska, Murray, Jacques, Koenig, & Vangergeest, 1996; Kochanska, Murray, & Coy, 1997), personality development (Rothbart & Ahadi 1994; Rothbart & Bates 2006), and academic competence (Blair & Razza 2007; Fabes et al., 2003; as cited in Razza et al., 2013) Broadly speaking, self-regulation consistently has been thought to be made up of several complicated processes that are directed at responding appropriately to a given environment (Bronson, 2000) and its system has been stated as the root of all causal processes (Bandura, 1991). Looking at past behaviors, analyzing present situations, and regulating behavior based on forethought are considered to be central concepts differentiating humans from other living creatures (Bandura, 1991; Baumeister et al., 2007). Given individual past outcomes and previous and current environments, people tend to develop ways to behave, ultimately resulting in personal behavioral standards that typically are shaped around what the individual believes to be the status quo (Bandura, 1991). These standards are thought to function as guides of how to

appropriately behave, and motivators for why individuals should regulate their emotions and behaviors depending on the desired outcome.

For young children, this complex process is a bit more difficult to do consciously. Within the first five years of life, the foundation for self-regulation, such as developing the ability to control emotions and behaviors, is rapidly emerging and is comparable to their motor and cognitive development (Bandy & Moore, 2010; Blair, 2002; Eisenberg et al., 2005; Kochanska et al., 2000; Kopp & Neufeld, 2003; Rothbart & Bates, 2006). During their first few years, young children rely solely on their primary caregivers to assist them in regulating their emotions and behaviors (Eisenberg et al., 2010; Kopp & Neufled, 2003). Kochanska and colleagues (1995) labeled this stage “situational compliance” (Kochanska, Aksan, Koenig, 1995) whereas Kopp (1982) labeled it as the “control” phase. Being assisted or prompted by the caregiver is also said to be an external form of self-regulation (Bronson, 2000). The next stage, as depicted by Kochanska and Kopp’s respective theories, goes from age two to three, where Kochanska labels it the “committed compliance” stage and Kopp labels it the “self-control” stage. This second stage is where the caregiver support starts to decrease and children are said to exhibit more independent compliance based on what is expected of them. Over time, with the consistent support and direction of a caregiver, continued neurological development, and the maturation of developmental abilities, young children progressively learn how to regulate independently and flexibly, beginning their transition to internalizing self-regulation (Bronson, 2000; Calkins, 2007; Kopp & Neufled, 2003; Taylor, 2011). Developing the ability to internally self-regulate (also known as internalization) and being able to regulate one’s own behaviors in alignment with typical social standards across a variety of settings is seen as a “central and significant development hallmark of

the early childhood period” (Bronson, 2000, p.32; Kochanska et al., 1995; Kochanska et al., 2001; Kopp, 1982; Taylor, 2011; von Suchodoletz, Trommsdorff, & Heikamp, 2011).

The development of self-regulatory abilities parallel the neurological developments that are associated with the parts of the brain involved in self-regulation, such as the prefrontal cortex, particularly during the first three years of life (Spencer-Smith & Anderson, 2009). Spencer-Smith and Anderson (2009) state that self-regulation has been noted to emerge even prior to the age of two and found that, when observed in a naturalistic environment, children demonstrated the greatest gains in self-regulation between 14 and 22 months with an increase in gains continuing to about 33 months. Similarly, a study by Taylor (2011) that examined the relationship between child routines and self-regulation of 21 children (6- to 60-months old) suggested that self-regulation emerges around age 2 to 3 and becomes centralized by age 3 to 4, in alignment with Kochanska and colleagues (1995) and Kopp’s (1982) theories, despite the differing terminology.

Given the age at which neurological developments associated with self-regulation occur and the concept that being able to internally self-regulate is an essential part of childhood, studying this variable in preschool-aged children is obviously very important. The environment that surrounds young children is primarily created by their parents and affects the development of appropriate self-regulatory skills in accordance with neurological developments (Karreman, van Tuijl, van Aken, & Dekovic, 2006; Kochanska et al., 2000).

### Self-Regulation and Parenting

The environment that surrounds preschool age children is primarily created by their parents, and thus, with neurological development setting the stage, parenting

practices also appear to contribute to the gradual development of children's emerging self-regulatory skills (Karreman et al., 2006; Kochanska et al., 2000; Kopp, 1982). As previously mentioned, people develop personal behavioral standards based on their past and current environments that guide their self-regulatory performance (Bandura, 1991). From a young age, children's ability to regulate emotions and behaviors depends on their primary caregivers (Eisenberg et al., 2010; Kopp & Neufeld, 2003). Eventually, children learn how to internally self-regulate based on the support, direction, and environments created by their caregivers, along with their own maturation (Bronson, 2000; Calkins, 2007; Kopp & Neufeld, 2003; Taylor, 2011). However, the type of parenting plays a pivotal role in the child's development of self-regulatory abilities (Kopp, 1982).

Florez (2011) states that one of the most powerful ways to assist children in their self-regulatory development is through modeling and scaffolding during ordinary, daily activities. Further, several researchers have found a link between better self-regulation development and both positive parenting and family functioning (Eisenberg et al., 2005; Eisenberg et al., 2010; Hardaway et al., 2012). There is an abundance of evidence suggesting that, in particular, sensitivity, responsiveness, and maternal warmth in caregiving is associated with better child self-regulatory development (Kochanska et al., 2000; e.g., Owen et al., 2013; von Suchodoletz et al., 2011). Additionally, Cipriano and Stifter (2010) demonstrated that, for parents who used positive behaviors and emotional tones while using commands and prohibitive statements, two and a half years later, they typically rated their child higher on parent-reported effortful control than parents who used a more neutral tone while redirecting and provided explanations. In addition, Kochanska and colleagues (2000) demonstrated that maternal responsiveness toward their children at 22 months of age predicted effortful control development from 22 to 33

months. Providing appropriate external forms of self-regulation early on should later provide the child with the ability to internalize and exhibit correct forms of self-regulation independently. Therefore, the present study hypothesized that positive parenting will be positively related with self-regulation.

On the other hand, the expected development of self-regulation can be disrupted if there are conflicting standards between the primary caregivers or if negative parenting practices are used (Baumeister et al., 2007). Furthermore, negative parenting practices have demonstrated an inverse relationship with the development of self-regulation (Kochanska & Knaack, 2003). Particularly, negative maternal interactive styles and restrictiveness have been suggested to predict lower self-regulation (e.g., Lengua, Honorado, & Bush, 2007).

Lower levels of self-regulation (also called self-regulatory failure) have been suggested to be a cause of many social and personal problems that affect people in our society (Baumeister et al., 2007). Appropriate regulatory competency is commonly cited as a factor when examining the etiology of both maladjustment and psychopathology (e.g., Hill-Soderlund & Braungart-Rieker, 2007). In particular, externalizing behavior problems have been consistently found to be associated with self-regulation levels (Barnes et al., 2013; Caughy et al., 2013; Eiden et al., 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Valiente et al., 2006). When measured over three time points (when the child was 3, 4, and 5.5 years old), poorer self-regulation was predictive of an increase in externalizing behavior problems over time (Hardaway et al., 2012). Kochanska and Knaack (2003) also demonstrated that undeveloped effortful control in a child between the ages of 2 and 4 resulted in a risk factor for uncontrolled behaviors.

However, the theoretical model linking self-regulation and externalizing behavior problems has been consistently debated (Barnes et al., 2013).

Many researchers have attempted to provide an array of theories as to why child self-regulation may have a causal impact on externalizing behavior problems. The most common theory is that parenting predicts development of self-regulation and, therefore, influences subsequent development of externalizing behavior problem (Barnes et al., 2013; Eisenberg et al., 2005; Vazsonyi & Huang, 2010). Vazsonyi and Huang (2010) examined children at the age of 4.5 years old and did a three-wave longitudinal study examining this very path. Their results showed stability in self-regulation (labeled self-control in their study) and externalizing behaviors over the time lapse. They also demonstrated that parenting predicted positive growth in self-regulation over time as well as explained the variability of their initial self-regulatory level.

Eisenberg and colleagues (2005) demonstrated this relationship with a 3-wave longitudinal model as well; however, this study examined older children beginning, on average, around the age of 9.3 years (range 5.3 to 10.4 years). Their results showed that parenting, maternal warmth, and positive expressivity in particular, predicted effortful control two years later (around 11.4 years of age), which later predicted externalizing behavior problems another two years later (around 13.4 years of age). A partial mediation model was also supported with effortful control mediating the relationship between maternal warmth and positive expressivity to child externalizing behavior problems.

Similar findings were observed by Valiente and colleagues (2006) in a longitudinal study of 199 children (mean age of 7.5 years old) at three time points over four years using parent and teacher reports of children's effortful control (i.e., attention shifting and attention focusing) and externalizing problem behavior and an observable

measure of the child's self-regulation. Their persistence with a laboratory puzzle task, as opposed to being off-task or cheating, was coded as an indication of their self-regulatory skills (i.e., reactive impulsivity). Results showed that effortful control mediated the relationship between maternal expressivity and externalizing behavior problems. Their results also showed that, although both effortful control and overcontrol negatively predicted externalizing behavior problems at time one, effortful control, but not overcontrol, negatively related to children externalizing behavior problems at time three, when controlling for externalizing behavior problems at time one.

#### Relationship between Child Routines and Self-Regulation

It is suggested that the relationship between routines and self-regulation exists because of the structure and predictability that routines provide (Bronson, 2000; Martin et al., 2012; Perry 2005). Perry (2005) explains children with poor self-regulation skills as being "internally unstructured;" therefore, the consistency of structured routines allows children to know what to expect and to be aware of and regulate their thoughts, emotions, and behaviors accordingly. Although more directed at family routines as a whole, Martin and colleagues (2012) explain this concept as exemplifying lawfulness to young children. When events are consistently predictable, children will eventually learn that so too are the rewards that follow compliance. On the other hand, when routines, and consequently, rewards, are irregular, children seek out the rewards by acting inappropriately rather than following directives since they don't have an end goal in sight and have not been given the opportunity to associate compliance with rewards.

As mentioned earlier, Eisenberg and Sulik (2012) use the analogy of becoming more attentive and conscious when driving a car in bad weather or traffic as an example of a situation where effortful control becomes a more conscious effort. In the context of

consistent daily routines, regulating these activities/processes should, too, become automatic/habitual if they remain consistent. However, when the routines are not consistent, the child's arousal becomes like the attention of the driver in bad weather or traffic, hyperaroused. The child's confidence in his/her ability to change the environment with his/her behavior may be diminished resulting in a heightened state of arousal, rather than developing appropriate self-regulatory skills. (Martin et al., 2011).

Furthermore, Wittig (2005) claimed that routines may assist with the development of appropriate self-regulatory abilities because of the boundaries that need to be established in order to maintain such routines. These boundaries are typically formed around what is believed to be the standard of acceptability. As previously mentioned, people behave around what they believe to be the status quo and, for young children, this is formed by their parents (Bandura, 1991). By being able to consistently predict any rewards received by following set, acceptable boundaries, or to predict punishments associated with attempting to exceed these boundaries established by their daily routines, young children are more able to conceptualize possible future events based on their behavior and may be able to use that knowledge as incentive to self-regulate, or control their behavior.

Additionally, it has been repeatedly suggested that routine activities can offer self-regulatory practice over a continuous period of time, further strengthening those skills (Barber & Munz, 2010; McCullough & Willoughby, 2009). This is thought to occur because it causes children to continue on with an activity they do not enjoy or to resist the urge to misbehave because they know that the activity will soon end and, over time, will increase their self-regulatory capacity. It can also be thought to occur because the sheer repetition of doing the routine makes it more likely to become habitual, like that of the

automated driver, therefore, reducing the amount of resource depleted in performing those activities. Skill enhancement is another theory that can be put forth as to how routines may strengthen self-regulation. Repeated practice of a particular skill can assist the child in the ability to do the activity and may even cause certain parts of it, if not the activity as a whole, to become automatic, as explained above.

Although many researchers claim that there is a relationship between routines and self-regulation, Taylor (2011) is one of few researchers who has tested this claim outright. Children ( $n = 21$ ) between the ages of six and 60 months, were videotaped three times over a six-month period in their respective classrooms as they engaged in different daily activities. Trained observers' coded the tapes afterwards for specific self-regulatory behaviors and for structure of daily routines.

Overall, Taylor's (2011) results showed that children who are presented with higher structure and routine activities in their daily lives have a tendency to engage in more self-regulated behaviors over time. Specifically, complying with the rules and expectations without a necessary teacher directive, which was said to be an indication of internalization within the child, was demonstrated to have occurred more frequently in routine activities that had higher structure than those with low structure. Also within the higher structured routine activities, there was less defiance of a teacher's request past 10-seconds but without a behavioral outburst or turning away. Taylor hypothesizes that the presence of the cues associated with the higher structured activities may decrease the chances of a child not staying on task. Breaking a rule or defying a teacher directive by walking away/turning away or by doing something different than their request; aggression toward an adult, peer, or object that can be acted upon or verbalized without action being taken; and/or taking an object/toy without consent were the particular

behaviors demonstrating less self-regulatory abilities that occurred more frequently during lower structured routine activities and less frequently during the higher structured activities. The researcher suggested that the structured nature of the activities strongly influenced the lack of self-regulatory behaviors.

Martin and colleagues (2012) also studied facets of this relationship; however, they focused more on the specific links between self-regulation and household chaos, including a lack of family routines. Using data from the Project on Human Development in Chicago Neighborhoods, which tracked children of different ages over three time periods, researchers examined the data obtained from the second and third testing periods only. Children were, on average, two and a half years old for the second session and five years old for the third session. Household chaos was assessed at the second session, and laboratory tests of effortful control (delay of gratification and two measures of motor control) were used to assess self-regulation at the third testing session. The results showed that over the testing sessions, lack of routines related to lower ability to delay gratification. This relationship was found while controlling for the other factors that comprise household chaos and was not mediated by either maternal warmth or the learning materials in the home. This further points to the importance of routines in the development of self-regulation in young children. In addition to Taylor (2011), these results provide support for continuing to investigate the relationship between child routines and self-regulation.

### Current Study

The literature suggests that both negative and positive parenting practices are related to externalizing behavior problems in preschool children such that negative parenting demonstrates a positive correlation and positive parenting demonstrates a

negative correlation (Clerkin et al., 2007; Koblinsky et al., 2006; Stormshak et al., 2000). However, mechanisms within the relationship need to be explored further given the high rates of externalizing behavior problems observed in young children. Researchers have found that several variables relate to parenting practices, including daily routines and child self-regulatory skills. It is theorized that daily routines are an extension of positive parenting and a protective factor against developing externalizing behaviors (Koblinsky et al., 2006; Lanza & Drabick, 2011; Prine, 2012; Wittig, 2005). Further, positive parenting has been shown associated with better self-regulation in children (Kochanska et al., 2000; e.g., Owen et al., 2013; von Suchodoletz et al., 2011). Given the importance of both daily routines and self-regulation on young children, and especially their externalizing behaviors, research in this area may provide a great deal of information on adaptive and maladaptive childhood outcomes.

Despite the research conducted on each of these variables, the literature provides very little examination of the theory that daily routines promote child self-regulatory development. The little evidence that is available shows that children who are presented with higher structure and routine activities in their daily lives tend to engage in more self-regulated behaviors over time (Taylor, 2011) and those with a lack of routines in their daily lives demonstrate weaker ability to delay gratification (Martin et al., 2012). Therefore, the mechanism through which parenting practices relate to child externalizing problems through their daily routine and their self-regulatory skill, particularly effortful control, should be examined further. Moreover, the studied relationships described above have yet to be examined in the preschool population. Thus, the purpose of the present study was to evaluate previously unexamined relations among child routines and child self-regulation in preschool children and to test mediation models with child routines and

self-regulation as serial mediators of the relation between parenting practices and child externalizing behavior. Negative and positive parenting practices were examined in two separate models.

Hypothesis 1 was that several significant bivariate relations will be supported. (1a) Negative parenting practices will be negatively correlated with child routines and with self-regulation but positively correlated with externalizing problems; (1b) the opposite direction relations will be observed for positive parenting practices. Positive parenting practices will be positively correlated with child routines and self-regulation but negatively correlated with externalizing problems. (1c) Child routines will be negatively correlated with externalizing problems and positively correlated with self-regulation whereas (1d) self-regulation will be negatively correlated with externalizing problems. Hypothesis 2 was that an indirect effect of child routines through self-regulation to externalizing problems will be supported. Hypothesis 3 was that an indirect effect of parenting practices through child routines to self-regulation will be supported. Specifically, there will be support for (3a) an indirect effect of negative parenting practices through child routines to self-regulation and (3b) an indirect effect of positive parenting practices through child routines to self-regulation.

Next, exploratory serial mediation models was examined in which parenting practices relate to child externalizing behaviors through child routines and self-regulation. Hypothesis 4 was that there will be an indirect effect of parenting through child routines and self-regulation to externalizing problems. Specifically, there will be support for (4a) an indirect effect of negative parenting practices through child routines and self-regulation to externalizing problems and (4b) an indirect effect of positive parenting practices through child routines and self-regulation to externalizing problems.

Finally, hypothesis 5 was that there will be an indirect effect of parenting practices through self-regulation (accounting for child routines) to externalizing behaviors. There will be support for (5a) an indirect effect of negative parenting practices through self-regulation (accounting for child routines) to externalizing and (5b) an indirect effect of positive parenting practices through self-regulation (accounting for child routines) to externalizing behaviors.

## CHAPTER II

### METHOD

#### Participants

For this study, 166 maternal caregivers of preschoolers three to five years of age were recruited from daycares, preschools, and Head Start centers in the greater Hattiesburg area. In order to participate in the study, the participants were required to be a female primary caregiver of at least 18 years of age, have a three to five year old child, and be able to read and write in English. If there were more than one child within the age range in the home, participants were asked to choose the child attending the center where the data was obtained from. If there was more than one child attending the center, they were indicated to answer the questions by choosing randomly. Additionally, children reported to be diagnosed with an autism spectrum disorder or a global developmental delay were excluded from the study. Participants were compensated with a \$10 gift card to Wal-Mart or Amazon for their participation.

Two participants were excluded because the male caregiver completed the measures and 11 were excluded because the child was not in the three to five age range. Further, three participants were excluded due to patterned responding on one or more of the measures, two did not respond to a majority of the items on a measure making them unscorable, one chose multiple responses for the same item on multiple items also making the measures unscorable, and one chose not to disclose their child's sex. No participants indicated their child being diagnosed with an autism spectrum disorder or a global developmental delay. Therefore, due to the exclusionary criteria, 13 participants were excluded and seven were excluded due to other reasons, excluding 20 participants in total.

Therefore, the final sample included in this study was 146 female caregivers of preschoolers between the ages of three and five. Of the female caregivers included, the majority indicated that they were the child's biological mother (93.2%). The largest category indicated that they were raising their child with a married spouse (40.4%) whereas a significant number reported raising their child as a single mother (34.9%). Markedly, 11.6% of participants did not indicate a marital status. Using Hollinghead (1975) Four-Factor Index of Social Status, participants' scores ranged from 11 to 66 ( $M = 38.35$ ,  $SD = 13.82$ ) and the median family income was \$20,000 to \$24,999. Furthermore, 35.6% of participants reported completing college whereas 28.8% reported receiving some college or specialized training. Notably, 17.8% maternal caregivers stated being a high school graduate and 12.3% indicated having a graduate professional degree. Lastly, the reported mean age of the maternal caregivers participating in this study was 30.56 ( $SD = 7.03$ , range 20 to 66). This information was collected in three different ways; therefore, comparisons were done on demographic and target variables for each different method: packets done in person (56.2%), packets completed at home (27.4%), and online (16.4%). Those who completed the measures in person were completed at school registrations/orientations (e.g., Head Start) and those who completed the measures at home or online were recruited by flyers that were sent home with preschoolers at their daycares and preschools. See Table 1 for demographic breakdown of the maternal caregiver by recruitment method.

Table 1

*Descriptive Characteristics of Caregivers*

Caregiver Characteristic	Paper in Person N (%)	Paper Take-Home N (%)	Online N (%)	Total N (%)
<b>Relation to Target Child</b>				
Biological mother	73 (89.0)	40 (100.0)	23 (95.8)	136 (93.2%)
Adoptive mother	1 (1.2)	0 (0)	1 (4.2)	2 (1.4%)
Grandmother	3 (3.7)	0 (0)	0 (0)	3 (2.1%)
Legal guardian (e.g., foster mother)	2 (2.4)	0 (0)	0 (0)	2 (1.4%)
Other	1 (1.2)	0 (0)	0 (0)	1 (.7%)
No Response	2 (2.4)	0 (0)	0 (0)	2 (1.4%)
<b>Biological Parents' Marital Status</b>				
Single (never married)	45 (54.9)	3 (7.5)	3 (12.5)	51 (34.9%)
Currently married	9 (11.0)	31 (77.5)	19 (79.2)	59 (40.4%)
Currently living together (not married)	4 (4.9)	3 (7.5)	0 (0)	7 (4.8%)
Separated	4 (4.9)	0 (0)	1 (4.2)	5 (3.4%)
Divorced	4 (4.9)	1 (2.5)	1 (4.2)	6 (4.1%)
Widowed	1 (1.2)	0 (0)	0 (0)	1 (.7%)
No Response	15 (18.3)	2 (5.0)	0 (0)	17 (11.6%)
<b>Caregiver's Education Level</b>				
Junior High	1 (1.2)	0 (0)	0 (0)	1 (.7%)
Some High School	6 (7.3)	0 (0)	0 (0)	6 (4.1%)
High School Grad	25 (30.5)	1 (2.5)	0 (0)	26 (17.8%)
Some college or specialized training	33 (40.2)	7 (17.5)	2 (8.3)	42 (28.8%)
Standard college or University Grad	15 (18.3)	22 (55.0)	15 (62.5)	52 (35.6%)
Graduate professional degree	1 (1.2)	10 (25.0)	7 (29.2)	18 (12.3%)
No response	1 (1.2)	0 (0)	0 (0)	1 (.7%)

*Note.* Eighty-two participants completed the study in person on paper, 40 participants completed the study at home on paper, and 24 participants completed the study at home online.

Table 2

*Target Children Characteristics by Completion Method*

Characteristic	Paper in Person N (%)	Paper Take-Home N (%)	Online N (%)	Total N (%)
<b>Child Sex</b>				
Male	42 (51.2)	11 (27.5)	13 (54.2)	66 (45.2)
Female	40 (48.8)	29 (72.5)	11 (45.8)	80 (54.8)
<b>Child Age</b>				
3	37 (45.1)	16 (40.0)	10 (41.7)	63 (43.2)
4	44 (53.7)	20 (50.0)	13 (54.2)	77 (52.8)
5	1 (1.2)	4 (10.0)	1 (4.2)	6 (4.1)
<b>Child Race</b>				
Asian	0 (0)	2 (5.0)	0 (0)	2 (1.4)
Black	68 (82.9)	1 (2.5)	1 (4.2)	70 (47.9)
White	14 (17.1)	36 (90.0)	22 (91.7)	72 (49.3)
Multiracial	0 (0)	1 (2.5)	1 (4.2)	2 (1.4)
<b>Socioeconomic Status Level</b>				
I	8 (9.8)	0 (0)	0 (0)	8 (5.5)
II	23 (28.0)	4 (10.0)	2 (8.3)	29 (19.9)
III	38 (46.3)	4 (10.0)	2 (8.3)	44 (30.1)
IV	4 (4.9)	17 (42.5)	12 (50.0)	33 (22.6)
V	0 (0)	14 (35.0)	8 (33.3)	22 (15.1)
Not able to be Calculated	9 (11.0)	1 (2.5)	0 (0)	10 (6.8)

*Note.* For socioeconomic status, higher levels indicate higher class. Eighty-two participants completed the study in person on paper, 40 participants completed the study at home on paper, and 24 participants completed the study at home online.

The children that were reported on by their maternal caregiver for this study were majority female (54.8%). Their races were rather evenly split between White (49.3%) and Black (47.9%). Although the range of children's ages allowed to participant was three- to

five years, the mean age of target children included was 3.61 ( $SD = .57$ ). See Table 2 for demographic breakdown of the target children by recruitment method.

## Measures

### *Demographics*

A demographic questionnaire was first given to obtain descriptive information regarding the preschool child as well as his/her primary caregiver(s). Primary caregivers were asked to answer questions regarding their personal information such as relation to the child, marital status, race/ethnicity, occupation, education level, and their average yearly income as well as for the other primary caregiver(s), if applicable. They were also asked to answer questions about their child's demographic characteristics, including gender, age, date of birth, and ethnicity.

### *Alabama Parenting Questionnaire-Preschool Revision (APQ-PR; Clerkin et al., 2007)*

The *APQ-PR* is a preschool-age adaptation of the Alabama Parenting Questionnaire (APQ; Shelton et al., 1996), a self-report measure of parenting practices. This is a 32 item revision of the Alabama Parenting Questionnaire (APQ) designed to be more age appropriate for the assessment of preschool-aged children. The *APQ-PR* consists of 3 subscales: Positive Parenting, Punitive Parenting, and Negative/Inconsistent Parenting (Clerkin et al., 2007). Primary caregivers rated items on a five-point Likert scale that ranges from 1 (*never*) to 5 (*always*). All three factors have demonstrated adequate internal consistency with Cronbach's alphas ranging from .63 to .82 and after retesting one year later, the test-retest reliability estimates ranged from .52 to .80. The Positive Parenting score was used as a measure of positive parenting practices and the Negative/Inconsistent and Punitive Parenting subscales were combined to form a Negative Parenting composite (see Results). Forming this composite was further

supported by a significant correlation between the negative/inconsistent and punitive parenting subscales,  $r = .49, p < .001$ . For the current study, internal consistency estimates for positive parenting were  $\alpha = .88$  and for negative parenting were  $\alpha = .79$ .

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

The CRQ-P is a 35 item, parent report measure of daily routines of preschoolers. Items are measured on a two separate Likert scales, a Frequency scale and an Importance scale. The frequency scale ratings range from 0 (*never*) to 4 (*nearly always*) regarding how often the routine occurs at about the same time or in the same way. The Importance scale rating range from 0 (*Not at All*) to 4 (*Very*) regarding how important the parent perceives the routine to be. The CRQ-P consists of five subscales: Discipline, Daily Living, Activities/Positive Attention, Education/Social, and Religious/Hygiene. A Total Frequency scale is also calculated by summing the five subscales. Wittig (2005) found that the reliability of the CRQ-P Total Frequency scale had a coefficient alpha of .91 and that the five factors had a range of coefficient alphas from .72 to .85. Adequate test-retest reliability was also demonstrated (Total Frequency scale = .74; subscales ranging from .65 to .82) along with moderate evidence of construct validity when correlated with measures of family routines, child behavior problems, and parenting practices. The CRQ-P Total Frequency score was used as a measure of child routines and demonstrated an internal consistency of  $\alpha = .90$ .

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

The CBQ-SF is a shorter version adapted from the original *Children's Behavior Questionnaire (CBQ, Rothbart et al., 2001)*. The CBQ-SF is a 94-item parent report measure of different aspects of temperament in children three to seven years of age. It has consistently been found to have three factors: Extraversion/Surgency, Negative

Affectivity, and Effortful Control. Items are rated on a seven-point Likert scale ranging from 1 (*extremely untrue of your child*) to 7 (*extremely true of your child*). There is also a “not applicable” option. The Effortful Control scale was used in this study and consists of the following components: Attentional Focusing, Inhibitory Control, Low Intensity Pleasure, Perceptual Sensitivity, and Smiling and Laughter. However, after examining the items, Attentional Focusing and Inhibitory Control were most reflective of behavioral self-regulation and were therefore averaged to form a Self-Regulation score. This was modeled after Razza and colleagues (2013) study who used the average of these two components to examine self-regulation as well. Forming this composite was further supported by the significant correlation between Attentional Focusing and Inhibitory Control ( $r = .35, p < .01$ ). Example of items for Attentional Focusing are “when practicing an activity, has a hard time keeping his/her mind on it” and “is easily distracted when listening to a story.” Example of items for Inhibitory Control are “can wait before entering into new activities if s/he is asked to” and “can easily stop an activity when s/he is told “no”.” Ahadi and colleagues (1993) found that the effortful control measure demonstrated good internal consistency of .77 with coefficient alpha’s ranging from .67 to .94 (Ahadi, Rothbart, & Ye, 1993). Similarly, Kochanska and colleagues (1994) found an internal consistency score of .68 to .93 and a mean reliability estimate of .78. Most recently, Rothbart and colleagues (2001) found that this measure had a coefficient alpha’s ranging from .54 to .93, and an internal consistency mean estimate of .75. Specifically, the Self-Regulation scale demonstrated an internal consistency alpha of .63.

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

The ECBI is a 36-item, parent report measure of disruptive behavior and conduct problems in children ages 2 through 16. This measure consists of two scales, a Problem

Scale that is rated dichotomously as “Yes” or “No” indicating if the behavior is problematic and a seven-point Intensity Scale that ranges from 1 (*never*) to 7 (*always*), identifying how often the behavior occurs. Robinson and colleagues (2009) demonstrated good reliability of the ECBI ranging from .86 to .98. Eyberg and colleagues (1999; 1978) also demonstrated very high internal consistency ranging from .93 to .98, relatively high test-retest reliability ranging from .86 to .88, and good concurrent validity (Eyberg & Pincus, 1999; Eyberg & Ross, 1978). The Intensity scale raw score was used as a measure of child externalizing behavior problems in this study and demonstrated an internal consistency score of  $\alpha = .96$ .

#### Procedure

Upon IRB approval from the University of Southern Mississippi (Appendix A), participants were recruited from daycares, preschools, and Head Start centers throughout the greater Hattiesburg, Mississippi area using several different methods. For each of the methods used, the maternal primary caregiver was required to confirm that their child was between the ages of three to five years. If she indicated having multiple children within the age range, she was directed to select the one attending the center the data is obtained from; otherwise, she was asked to randomly select one child to avoid biasing the sample obtained. Then, the respondent was provided with a consent document that provided her with the anonymity information and informed her that she had the option to withdraw from the study at any time (Appendix B). It also indicated that although the measures needed to be mostly complete in order to receive the incentive, she did not have to answer any question that she did not feel comfortable answering. Upon the confirmation that the terms and agreements of the consent document were understood, the maternal primary caregiver was then asked to complete the measures described

above. Finally, once the respondent had completed all of the questionnaires, she was given the incentive, a \$10 gift card to Wal-Mart, through mail or electronically depending on her preference and the method through which the data was obtained.

All data collected, despite the method used, was only seen by the researchers and research assistants. Any paper and pencil packets were kept in a secure, locked room with only the researchers and research assistants given access. Any paper packets that are sent home with the participant and are not returned, or are returned with less than 20% complete, will be contacted by a researcher or a research assistant in order to assess their interest in continuing to participate and to request a return of the materials. Calls will be made once per week but only up to three times for a month unless the participant indicates that she is no longer interested in participating.

One method of face-to-face recruitment was recruited participants by setting up a table at school registrations/orientations (e.g., Head Start). In this situation, maternal caregivers will be given packets to complete on site. Upon completion of the informed consent and the questionnaires, they will then be asked to fill out a gift card log and then will receive their \$10 gift card to Wal-Mart. If they indicated that they could not finish the packet there, they were given the option to take the packet home and leave their phone number so the researchers could contact them to collect them from a chosen location (e.g. Head Start). Sending the gift card home with their child was also a provided option. Additionally, they were given the option to receive a flyer with a link to access the study online.

These flyers were also sent out electronically from directors and/or principals of schools and daycares to caregivers of children attending their programs. However, this method varied by school. The link to the online study was provided in order to complete

the study electronically. The researchers' contact information was also provided on removable slits of paper that are attached to the flyer that allowed participants to contact the researcher in order to obtain a hard copy if that was their preference.

As stated, maternal primary caregivers were given the option to access the measures through a secure online system entitled Qualtrics. For this procedure, the informed consent was first given. After they looked through the document, a box was provided directing them to check it if they agree to participate given the requirements and criteria surrounding the study. Once they completed the measures, they were given the option to provide their contact information in order to obtain their \$10 gift card incentive electronically or by mail. Information that was obtained electronically was then separated from their answers to the measures and both sets of information was saved in separate password protected documents.

## CHAPTER III

### RESULTS

#### Data Screening, Composite Formation, and Other Preliminary Analyses

First, the data were screened for outliers, out of range and other inappropriate data. Missing variables were replaced by replacing the mean of the individual's responses for the specific measure. Individuals who answered less than 80% of the items on any given variable of interest were excluded from analyses. Second, scales (e.g., positive parenting, negative/inconsistent parenting punitive parenting, attentional focusing, inhibitory control, and externalizing behavior problems) were formed by summing items based on the measures' directions or previous research (for descriptive of the variables of interest, see Table 3). The negative/inconsistent and punitive parenting subscales were converted to z scores, summed, and divided by 2 to form a standardized negative parenting practices composite. Then, the positive parenting composite was formed by converting the resulting scale into a z score so that it would be on the same metric with negative parenting composite. The composite for Self-Regulation was also formed by reverse scoring specific items in the Attentional Focusing and Inhibitory Control subscales, summing item means and dividing the total by the number of items to form the subscale means, and then summing the subscale means to form the Self-Regulation composite. Third, preliminary comparisons of questionnaires completed in person, at home, and online were conducted to see if there were any systematic differences between the groups on demographic variables and outcome variables. Lastly, bivariate correlations between similar demographic variables (i.e., child sex, child race, child age, coparenting status, SES, and maternal depression) and outcome variables (i.e., self-regulation and externalizing behavior problems) were conducted to examine potential control variables.

Table 3

*Descriptive Results for Variables of Interest*

	<i>M</i>	<i>SD</i>	Min.	Max	P. Range	Skew	Kurtosis
NP	-.00	.87	-1.57	4.07	--	1.63	4.95
PP	.01	1.01	-4.12	1.02	--	1.46	2.36
CR	3.29	.43	1.66	4.00	1.00-4.00	-.66	.52
SR	9.45	1.47	5.67	13.00	2.00-14.00	.061	-.353
EBP	2.69	1.10	1.00	6.56	1.00-7.00	.91	1.34

*Note.* M = Mean; SD = Standard deviation; Min = Minimum; Max = Maximum; P.Range = Possible Range; NP = Negative Parenting; PP = Positive Parenting; CR = Child Routines; SR = Self-Regulation; EBP = Externalizing Behavior Problems. Positive (PP) and negative (NP) parenting were converted to Z-scores therefore do not have a possible range.

As mentioned, preliminary comparisons were conducted to see if there were any systematic differences between the groups (i.e., online, in person on paper, at home on paper) on demographic variables and outcome variables. This was done by conducting chi-square tests for categorical variables and one-way Analysis of Variance (ANOVA) for continuous variables. For those continuous variables that violated the homogeneity of variance assumption, the Welch statistic for global tests and the Games-Howell test were utilized as post-hoc, nonparametric analyses. The groups differed significant by their income ( $F = 136.28, p < .001$ ), caregiver education (Welch's  $F = 54.83, p < .001$ ), marital Status ( $\chi^2 = 56.90, p < .001$ ), child sex ( $\chi^2 = 7.04, p = .03$ ), and child race ( $\chi^2 = 77.82, p < .001$ ). Specifically, caregivers who completed the measures in person on paper had lower income, had less education, and were more likely to be a single parent than caregivers who completed measures online or at home. Furthermore, these participants were more likely to have a male child whose race was classified as non-

White. Notably, those who completed the packet at home had more female children than the other two methods. The caregivers who completed this study in person on paper were recruited from Head Start, a low-income population that in Mississippi is also predominantly African American.

Additionally, those who took packets to complete at home were compared with those who completed the questionnaires online (recruited from the same preschools) in an attempt to consider sampling differences. The groups did not demonstrate demographic differences. Specifically, no significant differences were found between income ( $F = .004, p = .95$ ), caregiver education ( $F = 1.08, p = .30$ ), marital status ( $\chi^2 = 1.26, p = .26$ ), and child race ( $\chi^2 = .05, p = .83$ ). Given the lack of differences found between these recruitment methods, the take-home and online methods were combined into one group and will hereafter be referred to as “Other Preschools.”

Outcome variables were compared to the in-person on paper group (henceforth referred to as “Head Start”) and Other Preschools. No significant differences between groups were found for child routines (Welch’s  $F = 1.79, p = .18$ ), self-regulation ( $F = .004, p = .95$ ) or externalizing behavior problems (Welch’s  $F = .86, p = .36$ ). However, a significant difference was found for negative parenting (Welch’s  $F = 6.2, p = .01$ ) and positive parenting approached significance ( $F = 3.87, p = .051$ ). Head Start participants reportedly engage in more negative and less positive parenting practices compared to those from Other Preschools, which is consistent with literature suggesting more negative and less positive parenting practices among caregivers of lower socioeconomic status (Fox, Platz, & Bentley, 1995). Taken together, these findings appear to reflect differences in demographic characteristics of the recruitment sites, rather than differences attributed to differences in recruitment method (i.e., online, in person). Furthermore, the observed

differences between Head Start and Other Preschools were expected and necessary in order to obtain a socioeconomically and racially diverse community sample. Therefore, all participants were combined into a single sample for subsequent analyses.

Additionally, as mentioned above, correlations were conducted and examined between demographic variables (i.e., child sex, child race, child age, coparenting status, SES, and maternal depression) and outcome variables (i.e., self-regulation and externalizing behavior problems) to identify potential control variables. The only significant correlation found for self-regulation was with child sex ( $r = .23, p < .01$ ), with girls (coded as 2) having higher self-regulation scores than boys (coded as 1). Significant correlations were also observed between the demographic variables and externalizing behavior problems. Specifically, externalizing behavior problems significantly related to both child sex ( $r = -.16, p < .05$ ) and child race ( $r = -.17, p < .05$ ), with boys and white children reported to have greater externalizing problems (see Table 4).

### *Main Analyses*

To assess Hypothesis 1, bivariate correlations were conducted (Table 5). (1a) As expected, negative parenting was significantly negatively correlated with child routines ( $r = -.32, p < .001$ ) and self-regulation ( $r = -.19, p < .05$ ) as well as significantly positively correlated with externalizing behavior problems ( $r = .41, p < .001$ ). (1b) Conversely, as expected, positive parenting was significantly positively correlated with child routines ( $r = .45, p < .001$ ) and self-regulation ( $r = .28, p = .001$ ) but significantly negatively correlated with externalizing behaviors ( $r = -.21, p = .01$ ). (1c) Furthermore, child routines were significantly positively correlated with self-regulation ( $r = .32, p <$

Table 4

*Bivariate Correlations between Demographic Variables and Outcome Variables*

	Self-Regulation	Child Externalizing Behavior
Child Sex	.232**	-.163*
Child Race	.102	-.173*
Child Age	.036	-.034
Coparenting	-.099	.130
Hollingshead (SES)	.071	.108
Maternal Depression	.006	.042

*Note.* Child gender coded as 1 = male, 2 = female. Child race was dichotomized into 0 = White and 1 = Non-White. Coparenting was dichotomized into 0 = single parenting 1 = coparenting. SES = Socioeconomic Status. \* $p < .05$ , \*\* $p < .01$ .

.001) and significantly negatively correlated with externalizing problem behaviors ( $r = -.28, p = .001$ ), as hypothesized. (1d) Lastly, as predicted, self-regulation was significantly negatively correlated with externalizing behavior problems ( $r = -.40, p < .001$ ).

Table 5

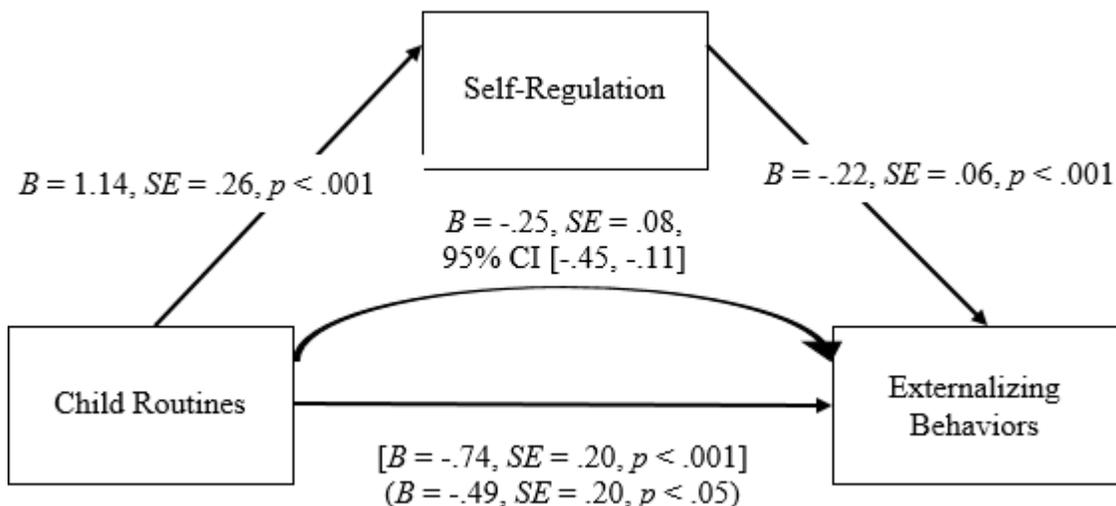
*Bivariate Correlations among Variables of Interest*

	1.	2.	3.	4.	5.
1. Positive Parenting	--				
2. Negative Parenting	-.161	--			
3. Child Routines	.448***	-.321***	--		
4. Self-Regulation	.276**	-.189*	.321***	--	
5. Externalizing Behaviors	-.208*	.409***	-.278**	-.395***	--

Note.  $N = 146$ . \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

To test the subsequent hypotheses, SPSS PROCESS (Hayes, 2013) was used with 5,000 bootstrap samples to estimate 95% bias-corrected confidence intervals (CI) in order to assess the significance of direct, indirect, and total effects for the remaining models. Hypothesis 2, examining self-regulation as a mediator between child routines to externalizing problems, was supported using a simple mediation model (PROCESS, model 4). Given correlations with the externalizing problems outcome variable, child race (dichotomized as White and non-White) and gender were both included as covariates. Specifically, those preschoolers reported to have more frequent daily routines also had higher levels of self-regulation ( $B = 1.14, SE = .26, p < .001$ ) and those with higher levels of self-regulation had fewer externalizing behavior problems ( $B = -.22, SE = .06, p < .001$ ). The total effect of child routines on externalizing problems ( $B = -.74, SE = .20, p < .001$ ) and the direct effect ( $B = -.49, SE = .20, p = .02$ ) both remained significant. When taking self-regulation into consideration in the model, the indirect effect was

significant ( $B = -.25$ ,  $SE = .08$ ,  $CI [-.45, -.11]$ ). Given that the CI was exclusive of zero, this is supportive of a significant indirect effect (see Figure 1).

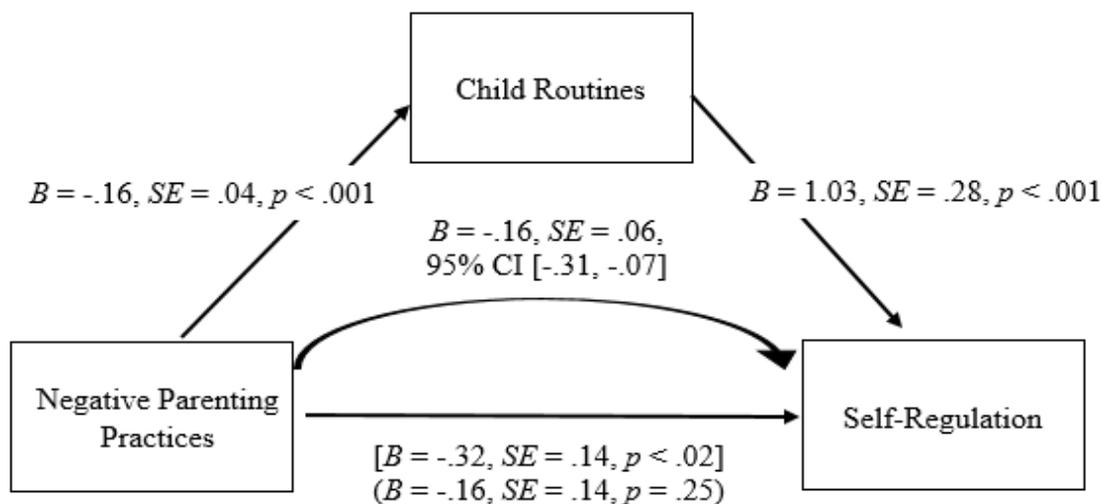


*Figure 1.* Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of child routines on externalizing behaviors; the statistics in parentheses shows the direct effect of child routines on externalizing behaviors, after controlling for the indirect effect of self-regulation (i.e., the mediator). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 samples with replacement (Hayes, 2013).

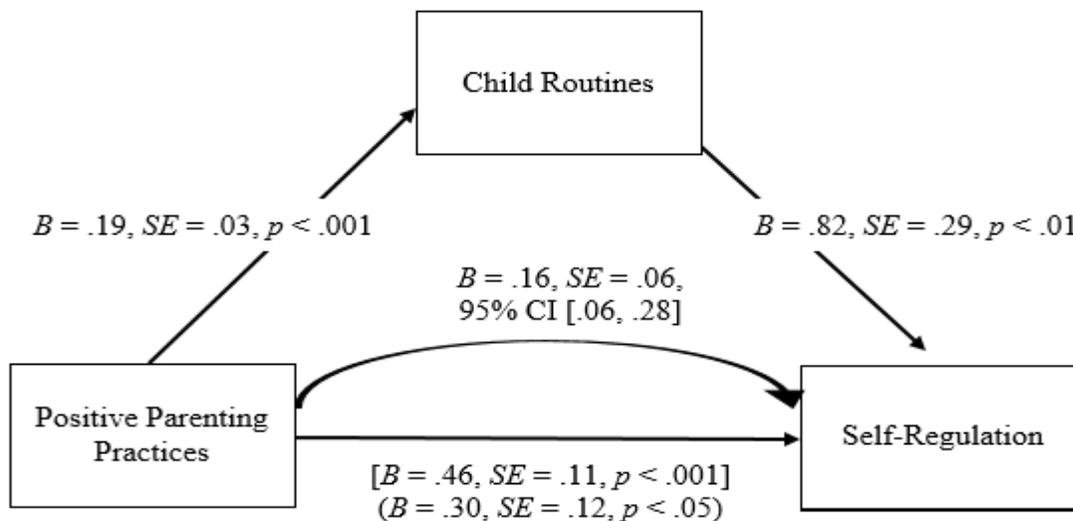
To examine hypothesis 3, an indirect effect of parenting practices through child routines to self-regulation, two simple mediation models using PROCESS (model 4) were run to analyze negative (3a) and positive (3b) independently. Given the significant correlation with self-regulation, child gender was included as a covariate in both models. Specifically, parents who reported lower negative parenting practices had more frequent daily routines ( $B = -.16$ ,  $SE = .04$ ,  $p < .001$ ) and those with more frequent daily routines also had higher levels of self-regulation ( $B = 1.03$ ,  $SE = .28$ ,  $p < .001$ ). The total effect of negative parenting practices on self-regulation was significant ( $B = -.32$ ,  $SE = .14$ ,  $p = .02$ ), but when child routines were taken into consideration as the mediator, the direct effect was no longer significant ( $B = -.16$ ,  $SE = .14$ ,  $p = .25$ ). The indirect effect of negative parenting practices on self-regulation through child routines was significant ( $B =$

-.16,  $SE = .06$ ,  $CI [-.31, -.07]$ ; see Figure 2). Furthermore, parents who reported more positive parenting practices had more frequent daily routines ( $B = .19$ ,  $SE = .03$ ,  $p < .001$ ) and those with more frequent daily routines had higher levels of self-regulation ( $B = .82$ ,  $SE = .29$ ,  $p < .01$ ). The total effect of positive parenting practices on self-regulation ( $B = .46$ ,  $SE = .11$ ,  $p < .001$ ) and the direct effect ( $B = .30$ ,  $SE = .12$ ,  $p = .02$ ) both remained significant. When taking child routines into consideration, the indirect effect of positive parenting practices on self-regulation was significant ( $B = .16$ ,  $SE = .06$ ,  $CI [.06, .28]$ ; see Figure 3).

To test whether there is an indirect effect of parenting practices through child routines and self-regulation to externalizing problems (hypothesis 4), a serial mediation analysis was conducted on each of the respective parenting practices (PROCESS, model 6). Given the correlations with the externalizing problems outcome variable, child race



*Figure 2.* Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of negative parenting practices on self-regulation; the statistics in parentheses shows the direct effect of negative parenting practices on self-regulation, after controlling for the indirect effect of child routines (i.e., the mediator). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 samples with replacement (Hayes, 2013).

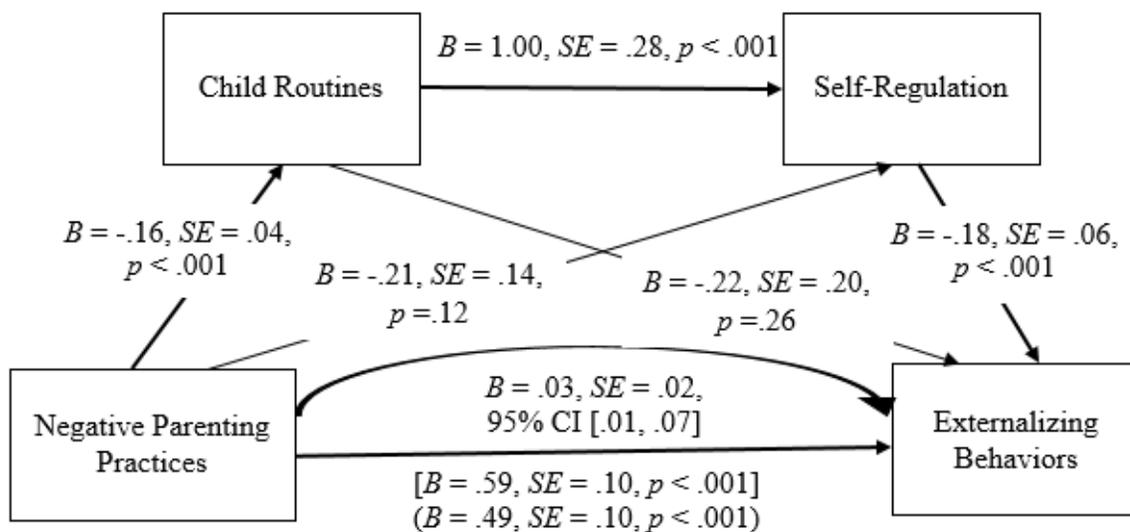


*Figure 3.* Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of positive parenting practices on self-regulation; the statistics in parentheses shows the direct effect of positive parenting practices on self-regulation, after controlling for the indirect effect of child routines (i.e., the mediator). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 samples with replacement (Hayes, 2013).

and gender were both placed in as covariates in both of these models as well. Results for the negative and positive parenting practices models are depicted in Figures 4 and 5, respectively. First, with respect to hypothesis 4a, those who reported more negative parenting practices endorsed fewer routines ( $B = -.16, SE = .04, p < .001$ ), those with fewer routines endorsed fewer self-regulatory skills in their children ( $B = 1.00, SE = .28, p < .001$ ), and those with fewer self-regulatory skills endorsed more externalizing behaviors ( $B = -.18, SE = .06, p < .01$ ). The total effect of negative parenting practices on externalizing behaviors was significant ( $B = .59, SE = .10, p < .001$ ) and remained significant after both mediators were taken into account for the direct effect ( $B = .49, SE = .09, p < .001$ ). The total indirect effect of negative parenting practices on externalizing behaviors, consisting of all the sum of all the indirect effects yielded from this model, was also significant ( $B = .10, SE = .06, 95\% CI [.03, .28]$ ). When looking at the serial

mediation model as a whole, the indirect effect of negative parenting practice on externalizing behaviors through child routines and self-regulation was found to be significant with its exclusion of zero in the CI ( $B = .03$ ,  $SE = .02$ , CI [.01, .07]; see Figure 4).

To assess hypothesis 5, the indirect effect of parenting practices through self-regulation (accounting for child routines) to externalizing behaviors was assessed using the same analyses as in hypothesis 4. With respect to negative parenting practices (hypothesis 5a), those who reported more negative parenting practices did not endorse significantly fewer self-regulatory skills in their children ( $B = -.21$ ,  $SE = .14$ ,  $p = .12$ ), although those with fewer self-regulatory skills endorsed more externalizing behaviors ( $B = -.18$ ,  $SE = .06$ ,  $p < .01$ ). The indirect effect of negative parenting practices through self-regulation (accounting for child routines) to externalizing behaviors was not significant

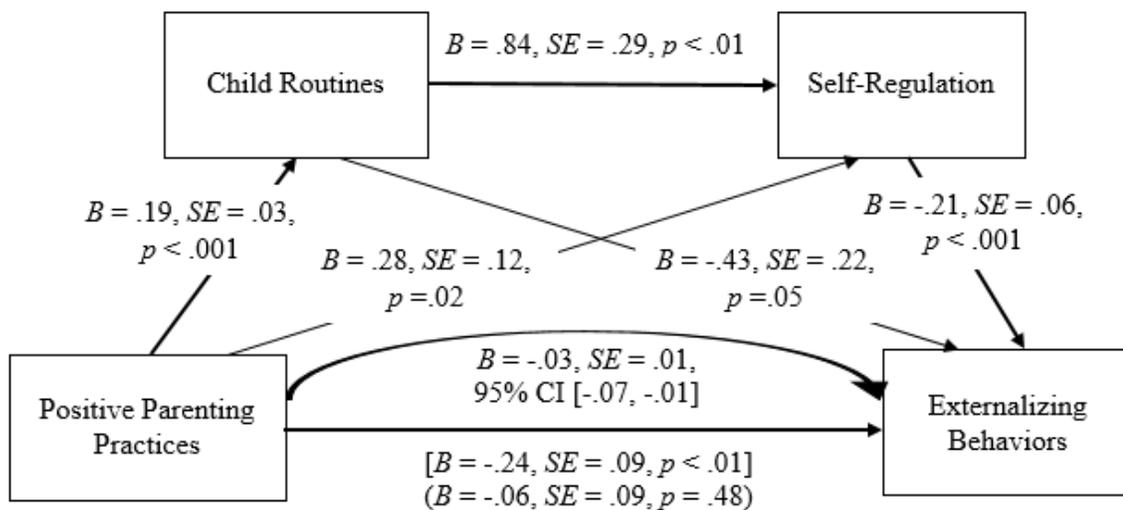


*Figure 4.* Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of negative parenting practices on externalizing behaviors; the statistics in parentheses shows the direct effect of negative parenting practices on externalizing behaviors, after controlling for the indirect effect of child routines and self-regulation (i.e., the mediators). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 samples with replacement (Hayes, 2013).

due to the inclusion of zero in the CI ( $B = .04$ ,  $SE = .03$ , CI  $[-.00, .13]$ ; Figure 4).

Similarly, those who reported more negative parenting practices endorsed more negative parenting practices endorsed significantly fewer child routines ( $B = -.21$ ,  $SE = .14$ ,  $p = .12$ ), although those with fewer child routines did not endorse more externalizing behaviors ( $B = -.22$ ,  $SE = .20$ ,  $p = .25$ ). The indirect effect of negative parenting practices through child routines (accounting for self-regulation) to externalizing behaviors was not significant due to the inclusion of zero in the CI ( $B = .03$ ,  $SE = .04$ , CI  $[-.02, .14]$ ; Figure 4).

With respect to the positive parenting practices model, those who reported more positive parenting practices (hypothesis 4b) endorsed more routines ( $B = .19$ ,  $SE = .03$ ,  $p < .001$ ), those with more routines endorsed more self-regulatory skills in their children



*Figure 5.* Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of positive parenting practices on externalizing behaviors; the statistics in parentheses shows the direct effect of positive parenting practices on externalizing behaviors, after controlling for the indirect effect of child routines and self-regulation (i.e., the mediators). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 resamples with replacement (Hayes, 2013).

( $B = .84, SE = .29, p < .01$ ), and those with more self-regulatory skills endorsed fewer externalizing behaviors ( $B = -.21, SE = .06, p < .001$ ). Initially, the total effect between positive parenting practices and externalizing behaviors was significant ( $B = -.24, SE = .09, p < .01$ ), but when both mediators were taken into account, the direct effect was no longer significant ( $B = -.06, SE = .09, p = .48$ ). The total indirect effect of positive parenting practices on externalizing behaviors, consisting of all the sum of all the indirect effects yielded from this model, was also significant ( $B = -.18, SE = .05, 95\% CI [-.28, -.10]$ ). The indirect effect of positive parenting practice on externalizing behaviors through both child routines and self-regulation was significant with its exclusion of zero in the CI ( $B = -.03, SE = .01, CI [-.07, -.01]$ ; see Figure 5).

Those who reported more positive parenting practices (hypothesis 5b) endorsed more self-regulatory skills in their children ( $B = .28, SE = .12, p < .05$ ), and those with fewer self-regulatory skills endorsed more externalizing behaviors ( $B = -.21, SE = .06, p = .001$ ). When taking self-regulation (accounting for child routines) into consideration, the direct effect was no longer significant ( $B = -.07, SE = .09, p = .48$ ). The indirect effect of positive parenting practices through self-regulation (accounting for child routines) to externalizing behaviors was significant CI ( $B = -.06, SE = .03, CI [-.13, -.01]$ ; Figure 5). Similarly, those who reported more positive parenting practices endorsed significantly more child routines ( $B = .19, SE = .03, p < .001$ ), although those with more child routines approached significance with respect to more externalizing behaviors ( $B = -.43, SE = .22, p = .05$ ). The indirect effect of positive parenting practices through child routines (accounting for self-regulation) to externalizing behaviors was significant due to the exclusion of zero in the CI ( $B = -.08, SE = .04, CI [-.16, -.01]$ ; Figure 5).

Finally, post hoc tests were conducted to assess the fit of the proposed overall serial mediation models, with the sequencing of the mediators (i.e., child routines and self-regulation) reversed. As with the original serial mediation analyses, child race and gender were included as covariates in both models. In regards to negative parenting practices, those who reported more negative parenting practices endorsed fewer self-regulatory skills in their preschoolers ( $B = -.38, SE = .14, p < .01$ ), those with fewer self-regulatory skills endorsed fewer routines ( $B = .09, SE = .02, p < .001$ ), and those with fewer routines endorsed more externalizing behaviors ( $B = -.22, SE = .20, p = .26$ ). As in the original model, the total effect of negative parenting practices on externalizing behaviors was significant ( $B = .59, SE = .10, p < .001$ ) and remained significant after both mediators were taken into account for the direct effect ( $B = .49, SE = .09, p < .001$ ). The indirect effect of negative parenting practice on externalizing behaviors through self-regulation and child routines was found to not be significant with its inclusion of zero in the CI ( $B = .01, SE = .01, CI [-.00, .03]$ ; see Figure 6). Those who reported more positive parenting practices endorsed more self-regulatory skills ( $B = .45, SE = .11, p < .001$ ), those with more self-regulatory skills endorsed more routines ( $B = .07, SE = .02, p < .01$ ), and those with more routines approached significance regarding fewer externalizing behaviors ( $B = -.43, SE = .22, p = .05$ ). As in the original model, the total effect between positive parenting practices and externalizing behaviors was significant ( $B = -.24, SE = .09, p < .01$ ), but when both mediators were taken into account, the direct effect was no longer significant ( $B = -.06, SE = .09, p = .48$ ). The indirect effect of positive parenting practice on externalizing behaviors through self-regulation and child routines was found to be significant with its exclusion of zero in the CI ( $B = -.01, SE = .01, CI [-.04, -.00]$ ; see Figure 7).

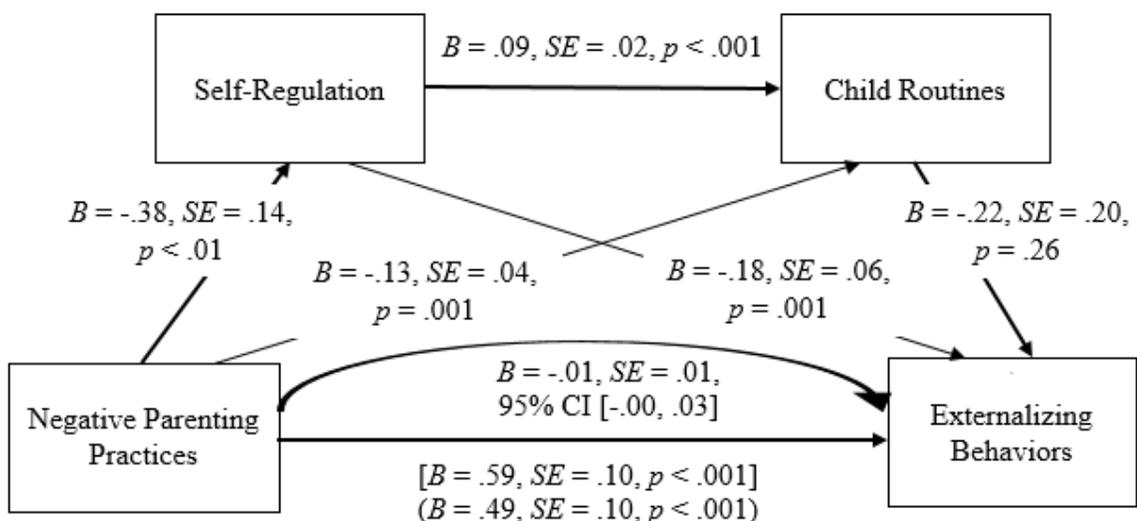


Figure 6. Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of negative parenting practices on externalizing behaviors; the statistics in parentheses shows the direct effect of negative parenting practices on externalizing behaviors, after controlling for the indirect effect of child routines and self-regulation (i.e., the mediators). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 resamples with replacement (Hayes, 2013).

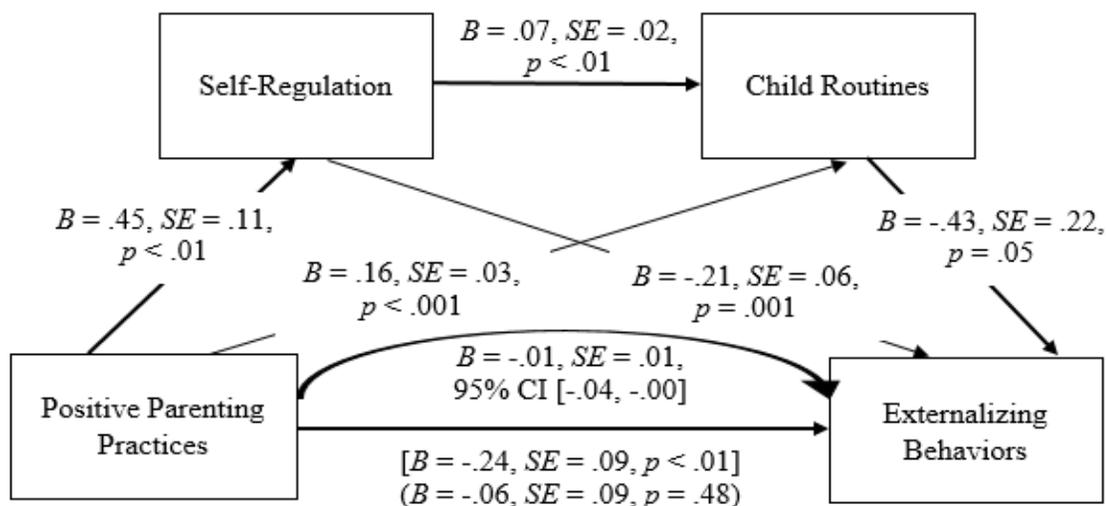


Figure 7. Unstandardized regression coefficients are reported. The statistics in brackets shows the total effect of positive parenting practices on externalizing behaviors; the statistics in parentheses shows the direct effect of positive parenting practices on externalizing behaviors, after controlling for the indirect effect of child routines and self-regulation (i.e., the mediators). The indirect effect (depicted above the curved arrow) was significant based on asymmetric 95% confidence interval with 5,000 resamples with replacement (Hayes, 2013).

## CHAPTER IV

### DISCUSSION

#### Goals and Hypotheses

The literature clearly indicates that negative and positive parenting practices relate to preschooler's externalizing behavior problems (Clerkin et al., 2007; Koblinsky, Kuvalanka, & Randolph, 2006; Stormshak, Bierman, McMahon, & Lengua, 2000); however, the exact mechanisms involved in this relationship are less well known, specifically in younger children. Child routines are increasingly being recognized as important facets in childhood development, particularly with their reported impact on children's feelings of competence (Bronson, 2002; George & Soloman, 2008), their ability to engage in appropriate behaviors (Fiese, 2002; Harris et al., 2013), and their association with less maladaptive externalizing behaviors (Koblinsky et al., 2006; Lanza & Drabick, 2011). Studies support child routines as a partial mediator of this relationship in school-aged children (Sytsma-Jordan & Kelley, 2004; Jordan et al., 2013), yet the mechanism through which routines relate to externalizing behaviors is less understood.

Self-regulation is an important variable to consider given its demonstrated relationships with parenting practices (Eisenberg et al., 2005; Eisenberg et al., 2010; Hardaway et al., 2012; Kochanska & Knaack, 2003), externalizing behavior problems (Barnes et al., 2013; Caughy et al., 2013; Eiden et al., 2007; Eisenberg et al., 2005; Kochanska & Knaack, 2003; Valiente et al., 2006), and, the less studied, child routines (Taylor, 2011). Although many researchers claim that child routines are important in the development of a child's self-regulation, few have tested these proclamations, especially in relation to externalizing behaviors. With this relationship left relatively untested, the

current study was the first known investigation of the temporal relationship between these variables, specifically in preschoolers.

First, bivariate correlations between the variables of interest (hypothesis 1) were supported in the hypothesized manner, consistent with the previously mentioned empirical and theoretical claims. As expected, the relations between parenting practices, child routines, and externalizing behaviors were confirmed. The predicted relations between parenting practices, self-regulation, and externalizing behaviors were also confirmed. However, of particular importance to this study, the relationship between child routines and self-regulation also demonstrated significance. This supports past theories suggesting that child routines relate to self-regulation in children (Bronson, 2000; Martin et al., 2005; Perry, 2005; Wittig, 2005) and confirms past empirical research that showed children with more routines engaged in more self-regulated behaviors over time (Taylor, 2011).

Second, support was garnered for an indirect effect of child routines on externalizing behavior through child self-regulation, after accounting for child race and gender. This result suggests that child routines promote self-regulatory skills, which in turn, are associated with fewer externalizing behaviors problems in preschoolers. This is consistent with the proposed theory that routines provide children with structure and predictability, allowing them to know what to expect, create appropriate and acceptable boundaries, and regulate their behaviors accordingly (Perry, 2005; Wittig, 2005). This is also consistent with Taylor's (2011) study that demonstrated that structure within a classroom influenced children's self-regulatory behaviors, ultimately resulting in more appropriate, self-restrained behaviors when their environment was more structured. This is particularly relevant in preschool-aged children because of the lack of research

conducted on the relationship between routines in preschoolers and development of self-regulatory behaviors, and because of the implications that self-regulation in early childhood is posited to have on later development (Kochanska et al., 1996; Kochanska et al., 1997; Rothbart & Ahadi, 1994; Rothbart & Bates, 2006). Moreover, with preschoolers transitioning into a more academically-structured environment (i.e., kindergarten) and the impact that having a successful transition has been suggested to have on later academic and social development (Hamre & Pianta, 2001), these results suggest that increasing self-regulation early on can be helpful, particularly with respect to development of externalizing behaviors.

Next, support was demonstrated for an indirect effect of negative parenting and positive parenting (in separate models) on self-regulation through child routines, after controlling for child gender. However, only positive parenting practices also demonstrated a direct effect. This suggests that child routines may be a specific mechanism through which negative parenting practices relate to child self-regulation. Both results are consistent with the aforementioned theories, despite being relatively untested. As mentioned, both types of parenting practices relate to externalizing behaviors in preschoolers (Clerkin et al., 2007; Koblinsky et al. 2006; Stormshak et al., 2000) with child routines mediating between the two in school-aged children (Sytsma-Jordan & Kelley, 2004; Jordan et al., 2013).

### *Negative Parenting*

When examining negative parenting practices independently from positive parenting practices, the results demonstrate that child routines and self-regulation are, in fact, an indirect and direct mechanism through which negative parenting practices relate to externalizing behaviors, after controlling for child sex and gender. However, when either

child routines or self-regulation is considered alone (and controlling for the other) as a mediator of the relation between negative parenting and externalizing behavior problems, the indirect relationship is lost. This suggests that both child routines and self-regulation are necessary to this relation. Moreover, when the temporal order of the mediators are reversed (self-regulation being placed before child routines), that indirect relationship is also insignificant. Thus, it can be posited that child routines play a critical role in the development of self-regulation in preschoolers, and that negative parenting practices themselves do not directly or indirectly relate to children's self-regulation except for through the mechanism of child routines. Specifically, with negative parenting practices consisting of inconsistent and punitive discipline practices (Clerkin et al., 2007; Patterson et al., 1989), it can be speculated that more consistent and less punitive disciplinary practices promote more frequent routines that cultivate development of internal self-regulatory skills resulting in fewer externalizing behaviors. This furthers the theory that child routines promote self-regulation due to their structure and predictability allowing children to know what to expect and regulate their behaviors accordingly (Bronson, 2000; Martin et al., 2012; Perry, 2005). Furthermore, it adds to the theories that parenting practices predict development of self-regulation and ultimately their externalizing behaviors (Barnes et al., 2013; Eisenberg et al., 2005; Vazsonyi & Huang, 2010). In addition, negative parenting practices maintain a direct relation with child externalizing behavior, suggesting the possibility of additional mechanisms not tested in this study, such as modeling of aggressive behavior through use of punitive physical disciplinary practices.

*Positive Parenting*

On the other hand, the relationship between positive parenting practices to externalizing behavior problems through child routines and self-regulation demonstrated a significant indirect effect, when accounting for child sex and gender. This relationship was maintained when either child routines or self-regulation were tested as individual mediators (accounting for the other) and when the temporal sequencing of the mediators were reversed (self-regulation and then child routines). Therefore, although the results support the previous literature indicating that positive parenting is associated with child routines (Jordan, 2003) and self-regulation (Eisenberg et al., 2005; Kochanska et al., 2000; e.g., Owen et al., 2013; von Suchodoletz et al., 2011), there is no support that the sequencing of these mediators has an impact on preschoolers' externalizing behaviors when considering positive parenting specifically. This further supports the idea that, unlike negative parenting, positive parenting relates to preschoolers' self-regulation both directly and indirectly through child routines and that they both independently and together relate to externalizing behavior. It also may suggest a bidirectional effect between child routines and self-regulation in light of positive parenting practices. These results also point to the idea that positive parenting practices influence both child routines and self-regulation independently, and when considering positive parenting practices, there may be some considerable overlap between child routines and self-regulation and their impact on preschoolers' externalizing behaviors. In contrast to the findings with negative parenting, once child routines and self-regulation were added to the model, the direct effect of positive parenting on externalizing behavior of preschoolers was no longer significant, suggesting that these mediators fully explain the inverse relation between positive parenting and externalizing behavior among preschoolers.

### Limitations and Directions for Future Studies

This study's findings should be interpreted in light of its limitations. First, all data were collected from a single informant, the maternal primary caregiver. Although these results were consistent with hypotheses that were developed off the previous literature, being able to analyze these variables with a multi-informant, multi-method approach would provide more confidence in these findings. Particularly, using multiple informants such as fathers or teachers would bolster confidence that these relationships exist outside of the observation of the maternal caregiver. In doing this, the relationship between paternal parenting practices could be considered, providing an additional perspective that could inform intervention development for both parents individually, especially given that previous research has demonstrated a difference in findings for the relationship between maternal and paternal parenting on externalizing behaviors depending on the gender of the child (Gryczkowski et al., 2009). Further, gaining teacher-report could prove to be important in the overall picture of this relationship, particularly given previous research that showed a difference between higher family routines impact on oppositional behaviors at school but not at home suggesting that children behave differently given their setting (Lanza & Drabick, 2011).

The data was also collected from within the greater Hattiesburg area. Due to limited geographical sample of the population, these results may be limited in their generalizability. Future research should attempt to gather data from a variety of other locations to extend the generalizability of the results. Although this study attempted to obtain a diverse sample in terms of ethnicity and socioeconomic status, future studies should also attempt to expand on this study's findings by examining the influence of ethnicity and cultural factors on models of parenting and child behavior. Both of these

limitations are particularly important given that cultural factors play a role in self-regulation due to differences in preferences and expectations that cultures prioritize resulting in emphasis on different behaviors (Tardif, Wang, & Olson, 2009).

Further, this study obtained data at one point in the child's development as opposed to at several points over time. A longitudinal design would further support or help determine the temporal order of the variables in the serial mediation model. Specifically, after analyzing the post hoc serial mediation model, the temporal order of the positive parenting practice model could possibly be clarified with use of a longitudinal model. Additionally, the negative parenting practice model's results could be strengthened with use of longitudinal studies.

Lastly, the measure of self-regulation demonstrated a low coefficient alpha of .63. One explanation for this could be that, after focusing on the behavioral self-regulation subscales, the number of items decreased. Alternatively, this low coefficient alpha could be the result of these items not demonstrating a unidimensional scale for self-regulation. Future research should address this limitation by further examining the individual items comprising the scale, considering the integration of other CBQ subscales, and including other forms of self-regulation measurement (i.e., laboratory tasks) to assess this important construct.

In addition to addressing these limitations, future research should examine other important factors that could be helpful to extending these results. Specifically, examining other variables (e.g., temperament) that could impact the relationship between positive or negative parenting practices and externalizing behaviors with respect to child routines and self-regulation may be important in further understanding of these relationships. The maintenance of a significant direct effect of negative parenting on child externalizing

behavior suggests other mechanisms, such as modeling, may warrant further investigation. Moreover, future research should also consider interventions that increase routines and structure in young children as well as promote self-regulation development in order to decrease or even prevent early development of externalizing behavior problems among preschool children.

### Conclusions

Given the emergence of externalizing behavior problems during the preschool years, and the vast amount of research dedicated to examining the mechanisms surrounding this concept, the current study attempted to extend upon the available research by examining lesser studied variables in conjunction with one another (i.e., child routines, self-regulation) in addition to more commonly studied parenting practices. Serial mediation models were supported for the relationship between both negative and positive parenting to externalizing behaviors through child routines and self-regulation. Specifically, after examining the temporal order in reverse (i.e., self-regulation and then child routines), the model examining negative parenting practices held as predicted. This supports the hypothesis that negative parenting practices result in less frequent child routines, therefore lower self-regulatory skills, ultimately resulting in more externalizing behavior problems in children. However, when child routines and self-regulation were reversed in the relationship between positive parenting practices, the model remained significant. Future studies should examine these temporal relations using a longitudinal design and multiple informants.

## APPENDIX A

## IRB APPROVAL FORM



**INSTITUTIONAL REVIEW BOARD**  
118 College Drive #5147 | Hattiesburg, MS 39406-0001  
Phone: 601.266.5997 | Fax: 601.266.4377 | [www.usm.edu/research/institutional.review.board](http://www.usm.edu/research/institutional.review.board)

**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: 14070202  
PROJECT TITLE: Predictors of Parenting Practices and Young Children's Behavior  
PROJECT TYPE: New Project  
RESEARCHER(S): Sara Jordan  
COLLEGE/DIVISION: College of Education and Psychology  
DEPARTMENT: Psychology  
FUNDING AGENCY/SPONSOR: N/A  
IRB COMMITTEE ACTION: Expedited Review Approval  
PERIOD OF APPROVAL: 07/16/2014 to 07/15/2015

**Lawrence A. Hosman, Ph.D.**  
**Institutional Review Board**

## APPENDIX B

## PARENT INFORMED CONSENT FORM

**Title of Research Project:** Predictors of Parenting Practices and Young Children's Behavior

**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 the primary female caregiver of a three- to six- year old, to participate in a research project regarding potential characteristics and behaviors of you and your young child. The information you provide about yourself and your child will assist in research about the complex relations between child and parent characteristics, parenting strategies 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), characteristics (e.g., feelings, thoughts) and parenting strategies along with your child's personal information (i.e., age, ethnicity, gender), characteristics, abilities, and behaviors. These questionnaires should take about 30-45 minutes to complete.

**Inclusion/Exclusion Criteria:** In order to participate in this study, you must be at least 18 years old and must be a primary female caregiver for a child between the ages of 3 to 6 years. Your child must not have been diagnosed with a global developmental delay or autism spectrum disorder. Please do not start this study if you do not meet these criteria.

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:** The risks of your participation are minimal. There is the risk that individuals other than the researchers may be able to view the information you provide if you return the study documents through your child's school or the mail. To help reduce this risk, an envelope is provided in which you can return study documents. Additionally, there is the possibility that you may experience discomfort responding to these questions if you find the information requested to be private. However, you may stop at any time if answering the questions makes you uncomfortable, although participants who do not complete the study may not be eligible to receive a gift card. If you continue to experience distress or are interested in seeking mental health services for yourself or your child, below are the names or local clinics providing services:

The University of Southern Mississippi Psychology Clinic – (601) 266-4588  
Pine Belt Mental Healthcare – (601) 544-4641  
Pine Grove Behavioral Health – (601) 288-8050

If you do not live in Hattiesburg, Mississippi or the surrounding area you may contact the Project Director listed at the top of the page for referral sources in your area.

**Potential Benefits:** You will obtain a \$10 gift card to a national retailer (e.g., Walmart) for completing this study. Other personal benefits for participating in this research project are limited; however, results obtained from the information provided by you, along with other participants, will assist in our understanding of the complex relationships among parenting strategies, childhood temperament and child behaviors. A better understanding of these factors may aid in the development of future research and interventions designed to help reduce parenting struggles and child behavior problems.

**Voluntary Participation:** Participation in this research project is entirely voluntary. You may withdraw from the research project at any time. However, if you withdraw early from the study, it is likely that you will not receive the \$10 gift card.

**Confidentiality:** Any and all information that is provided will be kept strictly confidential. Any physical data (questionnaire completed by paper-and-pencil packets) obtained will be kept in a locked filing cabinet. Only those who are directly involved in the research project will be given access to the secured filing cabinet. Electronic identifying 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 data is used in research, 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 suspicion of abuse to a child, elder, or disabled person or if there is a report that someone is in imminent danger of harming himself/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.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Witness \_\_\_\_\_ Date \_\_\_\_\_

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