Bedtime Resistance and Parenting in Early Childhood: A Self-Determination Perspective

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Abstract

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Difficulty getting ready for bed and settling at bedtime, commonly referred to as bedtime resistance, are prevalent problems in early childhood (Goodlin-Jones, Tang, Liu, & Anders, 2009; Johnson, 1991). Despite an abundance of previous research, few studies have considered the role of emergent developmental process in the context of bedtime resistance. The current study addresses this gap by examining the relationship between parenting practices and bedtime resistance in early childhood from a developmental perspective. Specifically, need-supportive bedtime parenting practices (i.e., autonomy-support, structure and involvement) were examined from a self-determination theory perspective (Deci & Ryan, 2000) and children's bedtime behaviours were conceptualized within a differentiated model of compliance and noncompliance. Two instruments were developed to capture these constructs and their psychometric properties were examined. One hundred thirty-one caregivers completed a series of online questionnaires about their parenting practices and children's behaviours. Findings provided preliminary evidence for the validity and reliability of the two newly constructed measures. Analyses revealed that child age was associated with how children respond to caregivers at bedtime. Although parenting practices were associated with less sophisticated forms of bedtime noncompliance, child age did not significantly moderate these relationships. Findings highlight the importance of examining bedtime resistance from a developmental perspective and the need for future research in this area.

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Dedication

To my incredible son, Kai Williams,

I dedicate this thesis to you. I am forever grateful for your endless support, patience, and unconditional love. Your words of encouragement, as well as your smiles and cuddles have kept my bucket full throughout this process. You were, and will always remain, my source of inspiration and motivation.

Introduction

Sleep related problems are a prevalent issue from infancy through late adolescence. A particular concern is the difficulty children have getting ready for bed and settling at bedtime. This sleep problem is commonly referred to as bedtime resistance. Whereas the majority of sleep problems such as night wakings improve with age (Sadeh, Mindell, Luedtke, & Wiegand, 2009), research suggests that problematic bedtime resistance increases with age in early childhood (Beltramini & Hertzig, 1983). Furthermore, estimated prevalence rates of bedtime resistance in children under five are as high as 42% (Goodlin-Jones, Tang, Liu, & Anders, 2009; Johnson, 1991). Research suggests that this issue is a persistent problem as a quarter of children still exhibit bedtime resistance into middle childhood (Blader, Koplewicz, Abikoff, & Foley, 1997; Iglowstein, Hajnal, Molinari, Largo, & Jenni, 2006). The need for additional research on bedtime resistance is further highlighted by the fact that this issue is not restricted to early childhood or Western culture (Wang et al., 2013). Instead this issue represents an ongoing concern that may become increasingly problematic with age. Of particular interest is the study of bedtime resistance during the preschool years, given that we typically see a rise in bedtime resistance between the ages of 2 and 5 years and that bedtime struggles are generally the most frequently reported sleep-related problem in early childhood.

Beyond the high prevalence rates and persistence, bedtime resistance is concerning because it is associated night-time awakenings, sleep efficiency (proportion of total time in bed spent asleep), sleep latency (minutes between bedtime and sleep onset), sleep duration, inconsistent morning wake times, bedtime irregularity, daytime sleepiness, and sleep related anxiety (Boles et al., 2017; Goodlin-Jones et al., 2009; Gregory, Rijsdijk, & Eley, 2006; Holley, Hill, & Stevenson, 2010; Jenkins, Owen, Bax, & Hart, 1984; Noble, O'Laughlin & Brubaker,

2012; Owens, Spirito & McGuinn, 2000). Furthermore, there are a multitude of short- and long-term negative consequences linked to bedtime resistance and other sleep problems (Thomas & Burgers, 2016), including increased difficulties with academic and cognitive functioning (Dewald, Meijer, Oort, Kerkhof, & Bögels, 2010; Fallone, Owens, & Deane, 2002; Sadeh, Gruber, & Raviv, 2002) and psychosocial regulation (Hiscock, Canterford, Ukoumunne, & Wake, 2007; Miller, Seifer, Crossin, & LeBourgeois, 2015; Quach, Hiscock, Ukoumunne, & Wake, 2011; Williams, Berthelsen, Walker, & Nicholson, 2017). There are also documented health consequences, such as increased injuries (Koulouglioti, Cole, & Kitzman, 2008; Owens, Fernando, & McGuinn, 2005) and mental health symptoms (Chorney, Detweiler, Morris, & Kuhn, 2007). Parental sleep, mood, and stress, as well as physical and mental health are also impacted (Bayer, Hiscock, Hampton, & Wake, 2007; Boergers, Hart, Owens, Streisand, & Spirito, 2007; Byars, Yeomans-Maldonado, & Noll, 2011; Gelman & King, 2001; Meltzer & Mindell, 2007). Given the array of negative consequences and repercussions associated with bedtime resistance in early childhood, it is important to understand and explore factors that contribute to this sleep problem.

Traditionally, research on bedtime resistance has been informed by clinical experience and knowledge of behavioural contingencies. Guided by this perspective, the majority of research has focused on reporting prevalence rates and age trends, as well as developing and evaluating interventions. Consequently, bedtime resistance research is not well contextualized within a developmental framework (Turnbull, Reid, & Morton, 2013). For instance, researchers have traditionally not considered the possibility that different forms of bedtime resistance may exist and that they may be linked to social emotional development. In the current study, an alternative conceptualization that distinguishes between qualitatively different forms of bedtime

resistance is adopted. This model has important implications for evaluating the adaptiveness of different bedtime resistance behaviours. It could also be argued that if all forms of bedtime resistance are not the same, some of these "problematic" bedtime behaviours might reflect a normal developmental trajectory and in some circumstances these behaviours may merely be a manifestation of emerging developmental processes.

In the current study, bedtime problems were framed in the context of developmental issues and a motivational theory. The study had three primary goals. The first goal was to examine the relationship between parenting practices and bedtime resistance from a developmental perspective. Specifically, this study explored the relationship between bedtime resistance and three dimensions of parenting, namely autonomy support, structure and involvement. The second goal was to explore the utility of an alternative conceptualization of bedtime resistance in an effort to distinguish between qualitatively different forms of bedtime resistance. Finally, the third goal of this study was to develop and provide preliminary support for two instruments: one instrument for examining parenting behaviours at bedtime and another for capturing qualitatively different forms of bedtime resistance.

The first section of this paper reviews factors commonly associated with bedtime resistance. Following this review, methodological issues in the extant bedtime resistance literature as well as conceptual limitations are presented. Finally, methodological issues and conceptual limitations of previous bedtime resistance research are addressed by providing a novel conceptualization of this construct. Specifically, bedtime resistance is contextualized within a motivational framework with developmental underpinnings, and a differentiated model of bedtime resistance is proposed.

Factors Associated With Bedtime Resistance in Early Childhood

The etiology of bedtime resistance is not clearly understood. The need for additional research in this area is underscored by the diversity and frequency of the aforementioned negative consequences and sleep problems associated with bedtime struggles. To this end, researchers have explored several factors that are concurrently and longitudinally associated with bedtime resistance. Specifically, factors both *intrinsic and extrinsic* to the child have been identified. *Intrinsic* factors include increased externalizing and internalizing behaviours (Cortese, Faraone, Konofal, & Lecendreux, 2009; Goldman, Richdale, Clemons, & Malow, 2012; Gregory & Eley, 2005), difficult temperament (Morrell & Steel, 2003; Reid, Hong, & Wade, 2009; Wilson et al., 2015), poor health status (Darwish, & Abdel-Nabi, 2016), and executive function and self-regulation deficits (Conway, Modrek, & Gorroochurn, 2017; Turnbull et al., 2013; Williams et al., 2017). In contrast, *extrinsic* factors include cultural (e.g., sociocultural values; Milan, Snow & Belay, 2007), environmental (e.g., socioeconomic status; Jones & Ball, 2014), and familial variables (e.g., family chaos; Boles et al., 2017). The research on extrinsic factors has primarily focused on understanding how sleep hygiene practices, notably inconsistent bedtime routines (Mindell, Li, Sadeh, Kwon, & Goh, 2015; Mindell, Telofski, Wiengand, & Kurtz, 2009), electronic use before bed (Nathanson & Beyens, 2016; Owens et al., 1999) and cosleeping (Cortesi, Giannotti, Sebastiani, & Vagnoni, 2004), contribute to bedtime resistance (see Moore, Meltzer, & Mindell, 2008 and Ortiz & McCormick, 2007 for reviews of interventions).

Parent factors and bedtime problems: Empirical evidence. Numerous variables have been implicated in bedtime resistance. That said, an increasing body of evidence supports the idea that parenting factors are pivotal in the development and maintenance of this bedtime issue

(Johnson & McMahon, 2008). This finding is not surprising given the important role caregivers have in their children's development, especially during early childhood. Nevertheless, there is a paucity of research specifically investigating the role of parenting factors in the context of bedtime resistance (Ortiz & McCormick, 2007). This gap is further limited by the paucity of studies focusing on the relationship between bedtime resistance and parenting during the preschool years, as extant research has primarily focused on infancy, toddler, and school-age children. In addition, researchers have generally approached the study of bedtime resistance within the context of other sleep related issues.

While the research is limited, progress has been made by exploring variables traditionally associated with other childhood problems, such as poor parental functioning. For example, Byars and colleagues (2011) found a significant association between day-to-day parenting stress and bedtime resistance in a study of 1- to 10-year-old children referred for an evaluation of insomnia (Byars et al., 2011). Noble and colleagues (2012) replicated this finding in a population of school-aged children with attention-deficit hyperactivity disorder (ADHD). Researchers have also consistently established a link between parent mental health status, namely depression, and bedtime problems in childhood (e.g., Monaghan, Herbert, Cogen, & Streisand, 2012; Reid et al., 2009).

In addition to parent functioning, researchers have explored several other parenting variables in the context of bedtime struggles, namely parenting beliefs, approaches, and styles. Contrary to the consistent findings on parent functioning, the findings from these studies have been conflicted and suggestive of a more complex relationship between parenting and bedtime struggles (i.e., bidirectional, mediated or moderated relationships). For instance, in one study the relationship between problematic maternal cognitions about sleep (i.e., caregiver's tendency to

have difficulty setting limits and to feel helpless or angry when their child is distressed at bedtime) and increased bedtime resistance was mediated by the frequency of active physical parent involvement at bedtime (e.g., cuddling to settle a child at bedtime; Tikotzky & Shaashua, 2012). However, findings from another study suggest that maternal emotional availability might be more important than the type of parent interactions at bedtime. Specifically, Teti, Kim, Mayer and Countermine (2010) found that maternal emotional availability at bedtime inversely predicted bedtime settling issues in children under the age of 2. This finding raises the question of whether maternal emotional availability may serve as a protective factor in bedtime resistance.

Researchers have also explored if parenting dimensions, and more broadly different parenting approaches, are related to bedtime problems. Research suggests that adverse parenting approaches, described as hostile, punitive, and ineffective (Reid et al., 2009), as well as parental hardiness (i.e., a multidimensional construct defined as a person's ability to cope effectively with stress by persisting and perceiving challenges as learning opportunities; Johnson & McMahon, 2008; Maddi, 2002) are associated, positively and negatively respectively, with bedtime resistance and sleep problems in early childhood.

In addition, a key study by Bordeleau and colleagues (2012) examined three parenting dimensions in the context of general sleep issues: maternal autonomy support (defined in this study as independence from parents), maternal mind-mindedness (defined as a parent's tendency to recognize their children as separate entities with their own set of thoughts, feelings and intentions; Meins et al., 2003), and maternal sensitivity (defined as responding to children's cues in a timely and appropriate manner; Leerkes, Blankson, & O'Brien, 2009). The authors predicted that autonomy support would facilitate children's ability to initiate sleep and return to sleep by themselves during the night; mind-mindedness would impact sleep by facilitating language

development and in turn indirectly promote self-regulation through increased self-reflection and self-control; and maternal sensitivity would facilitate sleep by providing children with a sense of emotional comfort and security at bedtime and throughout the night. Although, none of the three dimensions uniquely predicted night-time sleep, the composite score of these three dimensions uniquely predicted night-time sleep over and above the variance accounted for by family socioeconomic status and daycare attendance. These findings suggest that positive parenting practices may be positively related to adaptive sleep behaviours, whereas negative parenting practices may be associated with sleep problems in children. Consequently, research on bedtime resistance may benefit from a multidimensional conceptualization of parenting. However, this is yet to be determined as the literature has primarily focused on general sleep issues. Therefore, the following question remains unanswered: How do positive and negative parenting practices relate to bedtime resistance?

Is a transactional approach the answer? This review highlights the numerous ways that parenting variables may directly and indirectly influence child behaviours at bedtime; however, this research is plagued with inconsistent findings that fail to support a simple unidirectional relationship between parenting and bedtime resistance. In order to address the inconsistent findings, researchers have proposed a transactional (Sameroff, 2009) or systems (Bronfenbrenner & Morris, 2006) framework in which complex interactions across multiple variables or levels are considered (e.g., Blampied & France, 1993; LeBourgeois & Harsh, 2016; Sadeh & Anders, 1993; Williams et al., 2017). This approach suggests that a complex and likely dynamic interplay exists among variables. The value of this approach is highlighted by two examples.

First, there have been inconsistent results produced by research examining the link between internalizing and externalizing behaviours and bedtime struggles. In one study researchers found that for boys, but not girls, externalizing and internalizing behaviours at 24 months predicted bedtime resistance at 36 months (Conway, Miller, & Modrek, 2017). Conversely, Foley and Weinraub (2017) used a similar longitudinal cross-lagged panel approach and found the reverse: general preschool sleep problems indirectly predicted internalizing behaviours and directly predicted maternal-reported externalizing behaviours, specifically risk-taking, in preadolescence for both girls and boys. This inconsistency raises the question as to whether the relationship between bedtime resistance and other factors might vary by age or gender. More specifically, the direction and path of the relationship might vary during different developmental periods or for different genders.

Second, developmental research in other areas has established that child temperament consistently interacts with parenting variables (Bates, & Pettit, 2007). It appears that this finding holds in the case of bedtime resistance as well. Research by Conway, Modrek and Gorroochurn (2017) found that experiencing high maternal sensitivity during toddler years predicted fewer bedtime problems in early adolescence for individuals who demonstrated high, but not low, emotional negativity as toddlers. This finding is consistent with the perspective that the child's temperament seems to influence how parents support this child at bedtime and how the child responds to those parenting strategies. This trend is concerning since children with difficult temperaments tend to elicit more negative parenting practices (Grolnick, 2002; Rothbart, 2011; Ryan, & Deci, 2017), which can exacerbate bedtime problems. Consequently, studies should carefully consider the potential role that child temperament plays in bedtime problems.

Summary. Taken together, these findings highlight implications for the study of bedtime resistance. First, they demonstrate that bedtime resistance is a problematic developmental issue throughout childhood and is associated with negative outcomes in the short- and long-term for both the child and family unit. Second, although bedtime resistance is a complex developmental issue, it is not well contextualized within a developmental framework that accounts for dynamic and complex relationships between variables. Third, the majority of research on bedtime resistance has been conducted with infants, toddlers and school-aged children. Fourth, research often studies a myriad of sleep problems and there is a paucity of research investigating bedtime resistance as a distinct outcome variable. Fifth, a focus on multidimensional parenting factors and how they interact with other variables, such as child age, gender and temperament, is essential to gaining a better understanding of bedtime resistance.

To summarize, the paucity of research examining parent-child interactions at bedtime during early childhood is surprising and highlights the need for additional research in this area. At the most basic level, close consideration should be given to the inclusion of potential covariates and moderators in future bedtime resistance research. Moreover, although the existing literature contributes to our understanding of bedtime resistance, the research in this area has numerous limitations. In the following sections, I discuss specific methodological and conceptual concerns.

Methodological Limitations of Previous Studies on Bedtime Resistance

Research investigating childhood sleep problems has traditionally focused on objective sleep variables such as duration, hygiene, latency, and awakenings. Less research has been conducted on bedtime resistance, which is arguably a more subjective sleep related issue (Spruyt & Gozal, 2011). Consequently, the research in this area lacks a consistent term and precise

definition. Various terms are used in the literature ranging from non-specific lay terms (e.g., bedtime struggles; Latz, Wolf, & Lozoff, 1999) to specific clinical terms (e.g., behavioural insomnia of childhood limit-setting type; Moore, 2010). Furthermore, how researchers operationally define and in turn measure bedtime resistance varies significantly between studies. For instance, bedtime resistance is often lumped together with other variables such as night-time awakenings (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006) or sleep-onset problems (Gaylor, Burnham, Goodlin-Jones, & Anders, 2005). This approach is problematic since qualitative differences exist between these variables and bedtime resistance (Blader et al., 1997; Mindell et al., 2006). Moreover, the underlying causes and treatments for this bedtime problem may be different from those of other sleep problems (Blader et al., 1997; Mindell et al., 2006). Consequently, additional research is needed to examine bedtime resistance as a distinct variable with a clear operational definition in typically developing children, especially in early childhood.

The complexity of accurately and reliably measuring bedtime resistance becomes evident when one considers the constellation of child behaviours that characterize this issue (e.g., getting out of bed, persistent negotiations, ignoring, multiple demands, whining, temper tantrums, and verbal protests), as well as the diversity of motives behind these behaviours (e.g., wanting to spend time with their parents, not being tired, or feeling scared; Turnbull et al., 2013). Measures of bedtime resistance vary significantly in the literature and to date, there is no gold standard. Many researchers attempt to capture the spectrum of bedtime resistance behaviours using only on one or two Likert-style questions embedded within parent-report questionnaires of general sleep problems or behavioural/emotional problems (e.g., Child Behaviour Checklist for ages 1.5-5; Achenbach & Rescorla, 2000). Alternatively, researchers have used subscales to measure bedtime resistance, such as the Going to Bed subscale of the Child Sleep Wake Scale (CSWS;

LeBourgeois & Harsh, 2016). Both of these approaches are problematic because they typically include indirect measures of bedtime resistance and the questions vary significantly from one subscale to the next, making it difficult to compare results across studies. In addition, semi-structured sleep diary forms have been used to collect information about bedtime struggles. In a small scale study of four children, Burke, Kuhn, and Peterson (2004) used this approach to collect rich qualitative data on the type, frequency, and timing of disruptive behaviours during bedtime; however, many sleep studies involve several hundred participants which make this diary approach unfeasible.

The existing bedtime resistance measures have facilitated the collection of valuable data and consequently the development of several effective interventions. That said, the aforementioned questions and subscales fail to fully capture the spectrum of bedtime resistance behaviours highlighted by current research. For example, simply asking caregivers if their child resists going to bed is too broad. Valuable information about the etiology, intensity, severity and frequency of the construct is missing. Furthermore, the lack of a consistent term and precise conceptualization of bedtime resistance has led to problems. This inconsistency and lack of precision has made it challenging for researchers and clinicians to agree upon what does and does not constitute bedtime resistance. For example, some researchers have included questions about cosleeping or sleep latency, whereas other researchers argue that these items may be more representative of family values or other sleep disorders instead of bedtime resistance (Cortesi et al., 2008). This discrepancy calls into question the validity of bedtime resistance measures. Finally, it appears that most of the measures are based on clinical experience and empirical evidence, which has led to the lack of a cohesive approach to the study of bedtime resistance. The development of new measures may benefit from being theoretically driven with a focus on

reliably measuring specific aspects of bedtime resistance. The current study included one new measures to address these limitations.

Conceptual Limitations of Previous Studies on Bedtime Resistance

Given that bedtime resistance tends to increase with age in early childhood, it is surprising that research in this area is not well informed by developmental issues. There are two primary short-comings. First, research in this area has generally not considered the possibility that bedtime resistance may be a manifestation of typical child development and emerging processes. For example, researchers have failed to investigate developmental processes that are particularly salient between the ages of 2-5 years such as autonomy and self-regulation. Second, research in this area has not explored how these emerging processes might explain qualitatively different forms of bedtime resistance.

Emergence of autonomy and self-regulation in early childhood. A central developmental change for toddlers and preschoolers is their increasing sense of autonomy (Erikson, 1950/1993; Kopp, 1982). During this developmental period children have an increasing desire to undertake tasks and make decisions by themselves. Consequently, they are learning to balance their need to initiate and undertake behaviours on their own with their desire for an optimal outcome (Erikson, 1950/1993). Along with an emerging sense of autonomy, young children are developing increasingly sophisticated ways to regulate their behaviour. Self-control, a precursor to self-regulation, emerges around the first year and provides children at this age with the ability to engage in goal-directed behaviour consistent with social demands (e.g., a child following through on a simple parent request). By preschool-age, self-regulation gradually emerges. Consequently, preschoolers use increasingly flexible and sophisticated strategies to regulate and reflect on their own behaviour, especially in the absence of external monitoring.

Furthermore, they begin to engage in more goal directed behaviour, have access to more complex problem solving strategies, and are beginning to discriminate tasks that are appropriate for their skill level (Bronson, 2000).

Is bedtime resistance a manifestation of underlying developmental processes? The desire for autonomy and the ability to self-regulate are concurrently developing in early childhood. Both of these emergent developmental processes have implications to the study of bedtime resistance. Upon a superficial examination one might conclude that as children become more autonomous and their ability to regulate behaviours increases, bedtime resistance would decrease. Although this conclusion may be true of certain situations, such as when the goals of the child and parent align, it is also plausible that these processes may partially account for the rise in bedtime resistance observed in early childhood. For instance, autonomy may contribute to noncompliance at bedtime when the goals of the parent differ from those of the child, or when a child insists on using a particular strategy to solve a problem. Similarly, self-regulation may account for children's insistence and ability to persist at goal-directed behaviours at bedtime. In other words, bedtime resistance may be a manifestation of a children's increasing desire to assert themselves, to feel in control of their behaviours, and to engage in goal directed behaviour.

Bedtime Resistance and Parenting: A Self-Determination Perspective

Through a developmental lens, it is clear that the emerging developmental processes of autonomy and self-regulation may play a key role in the trajectory of bedtime resistance, especially in early childhood. Surprisingly, existing literature on bedtime resistance has not adequately addressed this possibility. The current study approaches the study of bedtime resistance from a developmental perspective utilizing a self-determination theory framework (SDT; Deci & Ryan, 2000).

Psychological needs and internalization. SDT is a motivational theory that explains how a social context, such as parenting at bedtime, influences children's functioning. Central to this theory is the idea that all individuals have three innate needs, namely *autonomy* (desire to see one's actions as volitional, in that the actions originate from the self and are free from control or pressure), *competence* (seeing oneself as capable and effective at interacting with their environment to create desired outcomes, especially in optimally challenging situations) and *relatedness* (need to belong and feel connected to important others in their life; Deci, 1975; Grolnick & Farakas, 2002; Ryan & Deci, 2017; Williams et al., 2011). According to SDT, it is through fulfillment of these needs that externally motivated behaviours become more autonomously regulated. In other words, as children increasingly adopt the norms and values of a task, extrinsically motivated behaviours are experienced as less controlled (Grolnick & Raftery-Helmer, 2013). This process is referred to as internalization. Understanding this progression is especially important given that one of the primary goals of socialization is to raise children that can effectively regulate their own behaviour independent of external monitoring (Grolnick & Farkas, 2002). Research suggests that in addition to supporting autonomous behaviour, internalization promotes psychological well-being, self-regulation, and effective functioning (Deci & Ryan, 2008). By comparison, needs-thwarting, which is the opposite of needs satisfaction, stifles an individuals' healthy development and undermines their well-being and functioning. Needs-thwarting can occur when a person's attempts to engage in autonomous behaviours are undermined, when they are made to feel ineffective or inadequate and when their attempts to connect with important others are rejected. This feeling undermines internalization and consequently, children are more likely to engage in extrinsically motivated behaviours.

Needs-fulfillment provides an important lens through which we can examine, predict, and understand how parenting might contribute to bedtime behaviours in early childhood. It could be argued that when caregivers satisfy their children's needs, children would be expected to increasingly identify with caregivers' values and expectations around bedtime and sleep. In turn, children would be expected to engage in more autonomously regulated behaviour, such as willing compliance or adaptive forms of resistance. This would be especially true as children mature and have access to more sophisticated self-regulatory skills. Conversely, children would be expected to actively resist or to engage in externally motivated compliance when caregivers are perceived as controlling or thwarting their basic needs.

Psychological needs-fulfillment and parenting. How then do caregivers satisfy their children's basic psychological needs? Using a multidimensional approach, SDT researchers propose that three parenting dimensions, namely autonomy support, involvement, and structure, satisfy children's needs for autonomy, relatedness, and competence, respectively (Grolnick & Raftery-Helmer, 2013; Ryan & Deci, 2017). *Autonomy-supportive* parenting refers to values and behaviours that nurture a child's sense of volition and initiative. Examples in the context of a bedtime routine include asking children when they would like to brush their teeth, recognizing the children's attempt to put on their pyjamas by themselves, or acknowledging children's feelings when they express disappointment. Research has established the importance of autonomy-supportive parenting approaches for emotion regulation, aggression, behaviour problems, and parental belief systems (Grolnick, Kurowski, McMenamy, Rivkin, & Bridges, 1998; Joussemet, Vitaro, et al., 2008; Landry et al., 2008).

The second dimension is *involvement,* which reflects the caregiver's interest, dedication, and attention to the child, as well as the parent-child relationship (Ryan & Deci, 2017).

Caregivers satisfy their child's need for relatedness at bedtime by investing time, attention, and resources (both material and emotional) into the parent-child relationship, as well as by showing the child affection, support, and care. It is well documented that parenting approaches that convey parental warmth, responsiveness and, investment in a non-controlling manner will promote internalization (Grolnick, 2009; Kochanska, 1994; MacDonald, 1997; Martinez & Garcia, 2007). In addition, child-adult closeness increases children's willingness to endorse choices made on their behalf by adults (Bao & Lam, 2008). Conversely, research highlights the negative consequences for a child's wellbeing when involvement is expressed in a controlling manner (e.g., withdrawing affection as a disciplinary technique; Assor, Roth, & Deci, 2000).

The third dimension is s*tructure*, which refers to parenting approaches that facilitate the child's sense of mastery and competence (Ryan & Deci, 2017). In the context of bedtime routines, parents provide structure by establishing clear and consistent expectations and rules for behaviour. That said, in the same way that involvement can be approached in an autonomously-supportive or controlling manner, research suggests that this is also the case with structure (Soenens & Vansteenkiste, 2010). For example, when communicating rules and expectations, some parents will seek their children's input, engage in thoughtful discourse, and offer meaningful explanations. Conversely, other parents will impose rules and expectations in a unilateral fashion, and relay primarily on punishments and rewards to gain compliance. These examples contrast the two ways in which structure can implemented, both in an autonomously-supportive and controlling manner, respectively. Not surprisingly, the former is associated with more beneficial outcomes in the long-term (Reeve, 2002; Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009). Until recently, the conceptualization of structure has been somewhat inconsistent in the literature and the majority of research has included this dimension under the

umbrella of autonomy-supportive parenting. Consequently, research investigating this construct separate from autonomy support is limited.

Summary. As illustrated earlier in this paper, a large body of literature suggests that parenting factors play a pivotal role in bedtime resistance and that further research investigating this relationship is warranted. In addition, a second body of developmental literature highlights two emerging processes, namely self-regulation and autonomy. These processes are especially salient during early childhood. Approaching bedtime resistance research from an SDT perspective brings together these two bodies of research. Specifically, SDT highlights the instrumental role of caregivers in both supporting children's increasing need for autonomy and facilitating children's self-regulation development. Furthermore, an understanding of different regulatory styles from an SDT perspective provides theoretical support for the possibility of unique forms of bedtime resistance and compliance. Building on this theoretical foundation, the following section draws upon compliance research to propose a novel model of bedtime resistance. This model differentiates between qualitatively different forms of bedtime resistance.

An Alternative Conceptualization of Noncompliance in Early Childhood

SDT research emphasizes the pivotal role of caregivers in fulfilling their children's basic psychological needs. This needs-fulfillment addresses their children's increasing need for autonomy and facilitates the development of more sophisticated forms of self-regulation. It follows that parenting behaviours may significantly influence how children respond at bedtime. Therefore, it is possible that parenting differences could result in qualitatively different forms of both bedtime compliance and noncompliance. This perspective is supported by the compliance research.

Traditional perspective of compliance and noncompliance. The bedtime resistance literature has traditionally adopted the perspective that compliance is good and noncompliance is bad. Consistent with this perspective, noncompliance or resistance to parental directives at bedtime has been conceptualized as a negative and undesirable outcome linked to maladaptive child outcomes. Consequently, the focus of the majority of literature has been on developing interventions to reduce bedtime resistance. However, this perspective may be short-sighted.

Alternative perspective of compliance and noncompliance. Findings from compliance and developmental research challenge this traditional view of bedtime resistance. They suggest that noncompliance, at least in some forms, may reflect healthy functioning and positive outcomes. In addition, some forms of noncompliance have been associated with positive parenting practices. For example, Dix, Stewart, Gershoff, and Day (2007) examined compliance in 14-27 month olds and, not surprisingly, reported that both compliance and some forms of noncompliance appeared to increase with age. Furthermore, defiance was associated with several positive parenting dimensions including maternal autonomy supportive behaviours. These findings are consistent with developmental theories which posit that some forms of defiance in early childhood may be an adaptive manifestation of a child's emerging sense of autonomy (Kuczynski & Kochanska, 1990). Furthermore, these findings challenge the traditional perspective that noncompliance is maladaptive and suggest the need for a more systematic approach to studying bedtime resistance in young children. The current study adopts a novel perspective of bedtime resistance based on this alternative conceptualization of noncompliance. Specifically, I propose that child's increasing ability to self-regulate and emerging sense of autonomy may contribute to both compliance with and resistance to parental requests or directives at bedtime.

Differentiated model of noncompliance and compliance in early childhood. Kuczynski and Kochanska (1990) proposed a differentiated framework for investigating noncompliant behaviours commonly exhibited in early childhood. They argued that these strategies demonstrate varying degrees of sophistication with respect to the directness, persuasiveness, and aversiveness of the strategy. First, *direct defiance* (i.e., displaying nonverbal or verbal resistance accompanied by aggression or uncontrolled anger) was classified as a less sophisticated form of noncompliance. Second, *passive noncompliance* (i.e., ignoring or not acknowledging a directive) was also classified as a less sophisticated strategy, since children may utilize this approach when they do not understand, do not want to execute, or are unable to execute the directive. Third, *simple refusal* (i.e., displaying overt nonverbal or verbal refusal unaccompanied by aggression or anger) was classified as a moderately sophisticated form of noncompliance. Fourth, *negotiation,* which included *excuses* (i.e., verbal or nonverbal refusal accompanied by a rationale) and *bargains* (i.e., attempt to modify or qualify the original directive), was classified as the most sophisticated strategy.

Using this differentiated conceptualization of noncompliance, Kuczynski and Kochanska (1990) examined the development of early childhood noncompliance. Parent reports and observations were conducted at toddler age (Mean = 30 months) and again at preschool age (Mean = 5 years). The authors reported that children's use of less sophisticated forms of noncompliance strategies decreased with age, whereas the use of more sophisticated forms increased during this developmental period. These results are consistent with findings from a previous study that examined this trend in toddlerhood (Kuczynski, Kochanska, Radke-Yarrow, & Girnius-Brown, 1987).

Expanding on their earlier work, Kochanska, Aksan, and Koenig (1995) proposed a differentiated classification of compliance. In line with SDT research, the authors described two qualitatively different forms of compliance that reflect different motivational system. The more adaptive form of compliance, c*ommitted compliance,* refers to a more internally motivated approach in which a child willingly responds to a parent's directive while embracing the parent's rationale or agenda. This form of compliance has also been referred to as *self-regulated compliance* in the literature (e.g., Ostfeld-Etzion, Feldman, Hirschler-Guttenberg, Laor, & Golan, 2016). In contrast, the less adaptive form, s*ituational compliance,* describes a more externally motivated approach in which a child obeys a parent's directive without embracing the parent's rationale or agenda. The authors argue that committed compliance is an emerging form of and precursor to internalization. Thus, it is believed that committed compliance ultimately leads to self-regulated behaviours which originate from within the child in the absence of parental supervision. In contrast, situational compliance depends on external regulation, such as parental supervision.

This differentiation was supported by findings from Kochanska and colleagues (1995). Their research examined factors that predicted compliance and internalization in toddlers and preschoolers. Observations and maternal reports were completed when the children were toddler age (26-41 months) and preschool age (43-56 months). The findings suggested that committed compliance and situational compliance had different developmental trajectories during this period – situational decreased, whereas committed increased. In addition, the researchers reported that children exhibited more situational compliance and less committed compliance in the "do" tasks (i.e., maternal requests) compared to the "don't" tasks (i.e., maternal prohibitions). Not only did children appear to find the "do" tasks more challenging, dyads also appeared to

experience less shared positive affect in the "do" tasks than the "don't" tasks. Finally, committed compliance and parent-child shared affect, but not situational compliance, were concurrently and prospectively positively associated with several measures of internalization, including internalization of family expectations.

Exploring the role of parenting and child temperament. Caregivers are children's primary socialization agents in early childhood, yet child temperament can also influence both how a child perceives and responds to situations. Therefore, it is not surprising that researchers have examined the role of both intrinsic factors (e.g., child temperament) and extrinsic factors (e.g., parenting approach) on noncompliance and compliance in early childhood. Overall the findings suggest that positive parenting, such as a polite and courteous approach (Kochanska et al., 1995) and the use of supportive, non-controlling parenting strategies (e.g., guidance; Crockenberg & Litman, 1990; Ostfeld-Etzion et al., 2016), facilitates child committed compliance and the use of sophisticated noncompliance strategies. Moreover, negative parenting approaches, such as parental use of physical force (Kochanska et al., 1995), controlling parenting strategies (Crockenberg & Litman, 1990), and maternal over-involvement (Ostfeld-Etzion et al., 2016), appear to undermine child compliance. These parenting approaches are associated with increased situational compliance and the use of less sophisticated noncompliance strategies, namely defiance. Finally, research suggests that adaptive temperament traits (e.g., attention focusing; Ostfeld-Etzion et al., 2016) and low temperamental negative reactivity (Lickenbrock, et al., 2013) are associated with increased committed compliance.

A Developmental Perspective of Bedtime Resistance: Implications

Existing research on bedtime resistance has traditionally failed to consider this sleep problem from a developmental perspective. This trend is surprising given the rapid growth of

cognitive and emotional processes that occurs during early childhood. That said, the review of the findings on the role of autonomy, the emergence of self-regulation, and the differentiation of compliance in preschoolers suggests that it is advantageous to cast bedtime resistance in a developmental framework. This research has important implications for our understanding of the bedtime resistance. The implications are threefold and in this section, I will draw out the implications of this research for the study of bedtime resistance within a developmental framework.

First, the aforementioned research illustrates the importance of distinguishing between different forms of compliance and noncompliance. The traditional conceptualization of bedtime resistance views behaviours targeted at delaying or refusing bedtime as aversive and lumps them together into a single homogenous grouping. Conversely, a differentiated model of bedtime noncompliance challenges the traditional conceptualization of bedtime resistance and instead proposes that some forms of bedtime resistance may reflect natural developmental processes, while other forms may reflect problematic behaviours with negative developmental trajectories. Specifically, a differentiated model of bedtime resistance discriminates between increasingly sophisticated forms of bedtime resistance such as negotiating or simple refusal compared to less sophisticated forms such as temper tantrums or whining. Making this distinction is important because these two forms of noncompliance could potentially be explained by distinct underlying processes. For instance, when a child simply says “No, I don’t want to go to bed”, this child is exerting autonomy using more sophisticated self-regulation strategies, whereas a child yelling at a parent is exerting autonomy using immature self-regulation strategies. In turn, this revised model may help researchers to reconcile inconsistencies in the extant literature and to explain and improve the efficacy of interventions. Furthermore, a differentiated model lends itself to

specifying typical developmental trajectories for compliant and noncompliant behaviours at bedtime. For example, behaviours such as having a temper tantrum at bedtime may be more typical for a two year old than a five year old. Finally, this model allows researchers to explore the possibility that different forms of bedtime resistance and compliance may have unique long-term consequences. For instance, a three year old who willingly complies with parental requests at bedtime may be more likely to internalize bedtime routines and demonstrate less bedtime resistance in the future than a child who exhibits situational compliance at bedtime. Therefore, interventions targeted at increasing bedtime compliance may want to focus on fostering committed versus situational compliance in preschoolers at bedtime.

A second implication is that bedtime preparation activities may be exceptionally difficult for children and parents. What makes these activities particularly difficult is that they are arguably a series of "do" tasks that occur at the end of the day when cognitive and emotional resources of both the parent and child are more likely to be depleted. As previously noted, both children and parents find "do" versus "don't" tasks more challenging and in combination with the time of day, bedtime activities likely place a heavy demand on self-regulatory resources. Given that self-regulation is an emergent process in early childhood, younger children may rely more heavily on parents to compensate for their less mature forms of self-regulation. Looking at this issue from a developmental perspective, it has not been previously established in the literature whether children of different ages are differentially susceptible to the effects of positive parenting practices during bedtime activities and this question remains ripe for investigation. In addition, there is substantial evidence in both the bedtime resistance and compliance literature suggesting that child temperament may moderate the influence of positive parenting practices. Therefore, it is important that future research account for this possibility.

The final implication is the potential association between positive parenting practices and bedtime noncompliance. Maternal autonomy support and relatedness provide young children with opportunities to practice asserting themselves in an adaptive manner (Dix et al., 2007). Therefore, it is not a stretch to speculate that positive parenting practices may facilitate some forms of bedtime noncompliance, particularly those strategies that reflect healthy attempts to assert personal needs and choices using non-aversive strategies. Bedtime activities can be characterised by a series of parental requests and expectations with which the child is expected to comply. As the research presented thus far has demonstrated, children may comply with parental directives when there is external monitoring or to avoid consequences. This form of compliance is more likely to occur when parents are focused on obtaining immediate situational compliance and less likely to generalize to future situations in the absence of parental monitoring. Alternatively, attachment theories would suggest that a different form of compliance occurs when children feel supported and secure in their relationships with their parents, and have a desire to cooperate with parental requests even in the absence of parental supervision. Motivational theories have taken this idea one step further and propose that children who feel supported are more likely to demonstrate committed or willing compliance because they have internalized values and standards that are shared with their parents. It follows that positive parenting practices may predict both committed compliance and more sophisticated forms of noncompliance at bedtime; however, additional research is needed to explore this prediction.

The Current Study

Given the methodological and conceptual limitations of existing research on bedtime resistance, the current research was conducted within the context of a motivational framework with developmental underpinnings. The overall purpose of the present study was to

systematically examine the relationship between parenting practices and bedtime resistance in early childhood using a differentiated model of noncompliance and compliance. Specifically, the current study aimed to make several contributions to the extant bedtime resistance literature. First, this study addressed calls for a developmental approach to the study of bedtime resistance. Specifically, an SDT framework was adopted as this perspective can account for emergent developmental processes that might explain increases in bedtime resistance during early childhood. Second, the current study attempted to reconcile inconsistent findings in the literature by adopting a transactional approach. With the exception of parental hardiness, previous research has typically examined the relationship between one dimension of parenting and bedtime resistance (e.g., maternal sensitivity) and has not adequately accounted for the possible contribution of child factors, such as temperament and developmental age. The current study addressed this gap by utilizing a multidimensional conceptualization of parenting and examined age as potential moderators. Third, a differentiated model of noncompliance was adopted, which allowed for the systematic examination of qualitatively different forms of bedtime resistance. Fourth, this study aimed to replicate the findings that as children age they adopt more sophisticated noncompliance strategies, use unsophisticated noncompliance strategies less frequently, and exhibit more committed compliance. Finally, the study aimed to provide preliminary support for two new instruments, one to measure bedtime parenting approaches and one for capturing qualitatively different forms of bedtime resistance and compliance.

Summary of Hypotheses for the Current Study

Five main hypotheses will be tested within the current study. The proposed hypotheses are:

(H1): Frequency of general needs-supportive parenting practices positively predicts frequency of needs-supportive parenting practices at bedtime.

(H2): Going to Bed (GTB) and Falling Asleep (FA) subscale scores of the Children's Sleep-Wake Cycle Scale (CSWS) negatively predicts frequency of all four noncompliance behaviours, as well as situational compliance behaviours at bedtime. In addition, GTB and FA subscale scores positively predicts frequency of committed compliance behaviours at bedtime.

(H3a): Child age positively predicts frequency of *committed* compliance behaviours at bedtime.

(H3b): Child age negatively predicts frequency of *situational* compliance behaviours at bedtime.

(H4a): Child age positively predicts frequency of *sophisticated* noncompliance behaviours at bedtime.

(H4b): Child age negatively predicts frequency of *less sophisticated* noncompliance behaviours at bedtime.

(H5a): Needs-supportive parenting at bedtime negatively predicts frequency of *less sophisticated* noncompliance behaviours and positively predicts frequency of *sophisticated* noncompliance behaviours at bedtime above and beyond child age.

(H5b): The relationship between needs-supportive parenting and frequency of noncompliance behaviours at bedtime is moderated by child age. Specifically, needs-supportive parenting at bedtime negatively predicts frequency of *less sophisticated* noncompliance behaviours for older children but not younger children at bedtime, as well as positively predicts frequency of *sophisticated* noncompliance behaviours for older children but not younger children at bedtime.

Method

Participants

One hundred thirty one parents participated in this study. Participants were recruited via parenting website advertisements (e.g., ChildsPlay 101), social media posts (e.g., Facebook), public bulletin boards (e.g., recreation centres, coffee shops, and childcare centres), and electronic advertising through childcare centres (e.g., email and newsletters). In addition, snowball (e.g., participants were invited to refer other families for participation in the study) and convenience sampling methods (i.e., electronic invitations to participate were sent to the researcher's friends and professional colleagues) were used. Upon contacting the experimenter, parents received a screening email to determine if they met the criteria for participation in the study. In order to participate, parents needed to be the person that typically oversees their child's bedtime routine, to have at least one typically developing child between the ages of 2-7 years, and to be fluent in English. Parents were asked whether their child had any developmental or mental health diagnoses, or major medical conditions. Parents were invited to participate if they met the inclusion criteria and did not have a child with one of these diagnoses. In total, 154 parents qualified to participate in the study. Two parents of children with serious developmental and medical diagnoses were excluded based on the exclusion criteria (i.e., one child was undergoing chemotherapy treatment and the other child was diagnosed with Tourette's syndrome, OCD, ADHD, and was undergoing a new medication trial). These children were excluded since these conditions are associated with increased bedtime resistance and the reasons underlying bedtime resistance for children with these conditions may differ from those children without such conditions (Reid et al., 2009). Of the 154 parents that met the study's criteria for participation, only 147 accessed the study's website. A further 16 parents were excluded from

the data analyses because they had data missing from at least 50% of the total questions, which resulted in a final sample size of 131 parents. Given that data were collected online, participants' locations are unknown. It is anticipated that the majority of participants resided in an urban north-western Canadian city where most of the recruitment occurred. Refer to Table 1 and Table 2 for a summary of detailed participant and household demographics characteristics.

Measures

Sociodemographic. A 13-item sociodemographic questionnaire developed for this study was used to gather general demographic information about the target child and caregiver (e.g., child's age, caregiver's employment status, and primary language spoken at home; see Appendix A for a copy of the questionnaire). The caregiver questions pertain to the adult who most frequently oversees the child's bedtime routine. Child age was calculated from the child's birthday and was used a covariate in the main study analyses.

Child temperament. Child temperament was assessed using the Children's Behaviour Questionnaire – Very Short Form (CBQ-VSF; Putnam & Rothbart, 2006; see Appendix B for a copy of the questionnaire). The Children's Behaviour Questionnaire (CBQ) is based on the conceptualization of temperament as individual differences in both reactivity and self-regulation and is one of the most widely used instruments for measuring multiple dimensions of temperament in early childhood. The very short form version used in the current study was derived from the full-length version for use by researchers interested in controlling for child temperament. There are 36 items which map onto three broad dimensions of temperament: Effortful Control (EC), Negative Affectivity (NA), and Surgency/Extroversion (SE). Scores were calculated by reverse scoring eight items and then calculating the average for each scale using only the items that received a numerical response. Internal consistency scores reported for the

Table 1. *Detailed summary of child and caregiver demographic characteristics.*

	n (%)		Mean (*SD*)	
Child Characteristics				
Age (in years)			4.5	(1.6)
2.0-2.99	34	(26)		
3.0-3.99	17	(13)		
4.0-4.99	25	(19)		
5.0-5.99	23	(18)		
6.0-6.99	22	(17)		
7.0-7.99	10	(8)		
Gender				
Girl	62	(47.3)		
Boy	69	(52.7)		
Caregiver Characteristics				
Age			36.5	(4.4)
Ethnicity				
Asian	12	(9.2)		
Black (e.g., African, Jamaican)	3	(2.3)		
Caucasian	109	(83.2)		
Caucasian and Asian	1	(0.8)		
Caucasian and Indigenous	6	(4.6)		
Relationship to Child				
Mother	111	(84.7)		
Father	20	(15.3)		
Marital Status				
Married	106	(80.9)		
Common-law	19	(14.5)		
Separated or Divorced	4	(3.0)		
Single	2	(1.5)		
Employment Status				
Full-time employment	71	(54.2)		
Part-time employment	28	(21.4)		
Stay-at-home parent	22	(16.8)		
Full-time or Part-time student	3	(2.3)		
Other	6	(4.6)		
Missing	1	(0.8)		
Education Level				
High School Degree	5	(3.8)		
Some College/University	28	(21.4)		
Bachelor's Degree	58	(44.3)		
Graduate/Post-Graduate Degree	37	(28.2)		
Other	3	(2.3)		
Caregiver Mental Health Diagnosis				
Yes	30	(22.9)		
No	101	(77.1)		

Table 2. *Detailed summary of household demographic characteristics.*

Household Characteristics		
Language		
English	128	(97.7)
Other	3	(2.3)
Adults in household		
1 adult	7	(5.3)
2 adults	117	(89.3)
3 or more adults	7	(5.3)
Gross household income		
less than $49,999	8	(6.1)
$50,000-$74,999	15	(11.5)
$75,000-$99,999	23	(17.6)
$100,000-$124,999	30	(22.9)
$125,000 or more	55	(42)

three factors are acceptable (Cronbach's $\alpha > .70$; Putnam & Rothbart, 2006). The factor structure of the questionnaire has been assessed using maximum likelihood confirmatory factor analysis with 12 items loading onto each dimension and the results indicating adequate fit (CFI = .96; Putnam & Rothbart, 2006). Parent respondents were asked to consider their child's behaviour over the previous 6 months when responding to the items. Each of the 36 items provided an example of how a child might respond in a situation (e.g., doesn't get very upset by minor cuts or bruises) and was scored using a 7-point Likert-style scale ranging from "Extremely Untrue of your Child" to "Extremely True of your Child." There was also a "Not Applicable" option if the parent had never observed their child in the situation described. The CBQ-VSF was used in the current study to control for child temperament and to test a moderated model.

Perceived stress. The 10-item Perceived Stress Scale (PSS-10; Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988; See Appendix C for a copy of the questionnaire) is a self-report measure of perceived stress and was designed for use in community samples with at least junior high education. The PSS-10 measures general life stress and specifically focuses on the extent to which people find their lives unpredictable, overloaded, and uncontrollable. In order to capture general life stress the questions on the PSS-10 are not tied

to specific situations or events (e.g., “In the last month, how often have you felt nervous or stressed?”), thus the scale is sensitive to stress resulting from a variety of sources (e.g., specific life events, ongoing circumstances, and anticipation of future events).The 10-item version was used in this study as its psychometric properties have been deemed superior to those of the 4-item and 14-item versions (Cohen & Williamson, 1988; Lee, 2012). With respect to its psychometric properties, the PSS-10 is well validated in diverse samples (Taylor, 2015) and demonstrates adequate internal consistency reliabilities ranging from α =.74 (Chaaya, Osman, Naasan, & Mahfoud, 2010) to.91 (Mitchell, Crane, & Kim, 2008). It has been suggested that the stability of the PSS-10 is less than 6 weeks based on test-retest reliabilities (Lee, 2012). Participants were asked to respond based on their feelings and thoughts over the previous 4-week time period and the items were rated on a 5-point Likert-style scale ranging from 1 (*Never*) to 5 (*Very Often*). Four items were positively worded and were reversed scored. Mean scores were calculated for each participant across the 10 items.

Perceived needs-supportive parenting – global. The revised 33-item Parents as Social Context Questionnaire – Parent Report (R-PSCQ; Skinner, Wellborn, & Regan, 1986; Skinner, Johnson, & Snyder 2005; see Appendix D for a copy of the questionnaire) measures three bipolar dimensions of parenting: autonomy support vs. coercion, structure vs. chaos, and warmth vs. rejection. Each bipolar dimension can be separated into six unipolar dimensions that include between five and seven items. This instrument assesses the extent to which parents perceive their own parenting practices as supporting their child’s basic psychological needs within a general context. The six dimensions can be combined into three subscales and these subscales demonstrate adequate internal consistency reliabilities (autonomy support α = .72; structure α =.61; warmth α = .75; Farkas & Grolnick, 2010). Two adaptations were made to the revised scale

for the current study. First, upon the recommendation of Egeli (2015) the original 4-point Likert-style response scale was expanded to include seven response options. This revision was made in order to increase the variability among participants' responses. Second, the response options were revised to improve consistency with the instructions. The revised instructions asked parents to respond "based on how true each statement is for [them] in relation to [their] child," however, the original response options used an agreement scale. The revised response scale ranged from 1 (*Very Untrue*) to 7 (*Very True*).

Perceived needs-supportive parenting – bedtime. The Perceived Needs-Supportive Parenting at Bedtime questionnaire (BNSP) was developed for the current study to measure the extent to which parents perceive themselves as supporting their child's three basic psychological needs during bedtime preparation activities (see Appendix E for a copy of the questionnaire). The questions were developed for caregivers with children between the ages of 2 to 7 years. This is a self-report scale informed by SDT, which taps three dimensions of needs-supportive parenting that are highlighted in the literature. Caregivers are asked to indicate the extent to which the information presented in each item is representative of their typical interactions with their preschool-age child while they get ready for bed. Items were rated on a 7-point Likert-style response scale (i.e., *Never, Almost Never, Occasionally, Half the Time, Often, Almost Always, Always*). There are ten negatively worded items that were reverse scored.

Items for this measure were generated based on a review of SDT research and existing measures, as well as theoretically relevant aspects of needs-supportive parenting. Several items were adapted from the Parent Autonomy Support Scale (PASS; Mageau et al., 2014; Ratelle, Duchesne, & Guay, 2017), the Teacher as Social Context Questionnaire (TASC; Belmont, Skinner, Wellborn, & Connell, 1988), and the Multidimensional Parental Structure Scale

(Ratelle, Boisclair Châteauvert, Duchesne, & Guay, 2016). The questions were adapted so they applied to a bedtime context and would be relevant for a preschool-age group. In total there are 36 items that map onto one of three factors: 14 items map onto the Autonomy Support subscale that taps the extent to which a caregiver provides their child with meaningful choices, offers rationales for requests, considers their child's perspective, supports their child's volitional behaviour, and minimizes use of controlling techniques (e.g., "I offer my child the opportunity to do some bedtime activities by themselves before offering to help"); 11 items map onto the Structure subscale that taps the extent to which a caregiver communicates clear and consistent expectations, offers rationales for consequences, responds in a predictable manner, and organizes the environment to support their child's competence (e.g., "If my child receives a consequence at bedtime, I explain why so my child understands my rationale"); and 11 items map onto the Involvement subscale that taps the extent to which a caregiver offers their child warmth and support, makes time for their child, enjoys their child's company, and is attuned to their child (e.g., "I enjoy spending time with my child while they get ready for bed").

Children's Sleep-Wake Scale. The Children's Sleep-Wake Scale (CSWS; LeBourgeois, Hancock, & Harsh, 2001; LeBourgeois & Harsh 2001; LeBourgeois & Harsh 2016) is a 25-item caregiver-report measure of behavioural sleep quality in children between the ages of 2-8 years old (see Appendix F for a copy of the questionnaire). The scale measures bedtime and sleep behaviours across five behavioural dimensions: Going to Bed, Falling Asleep, Maintaining Sleep, Reinitiating Sleep, and Returning to Wakefulness. Each subscale consists of five items that are scored on a 6-point likert style scale ranging from "Never" to "Always". In the current study, only the Going to Bed (GB) and Falling Asleep (FA) subscales were administered. A previous validation study provides support for the factor structure, internal consistency, test-

retest reliability, and construct validity of both subscales (LeBourgeois & Harsh 2016). Confirmatory Factor Analysis supported a 5-factor model with no factors loaded greater than 0.40 on more than one subscale. The internal consistency reliabilities were α = .88 for the GB subscale and α = .83 for the FA subscale. The test-retest reliability coefficients were r = 0.84 (p < .001) for the GB subscale and r = .78, (p < .001) for the FA subscale. Both subscales demonstrated adequate convergent validity: they were moderately correlated with corresponding parent sleep diary ratings (r = .59 and r =.58, respectively) and the FA subscale was positively correlated with actigraphy sleep latency measurements (r = 0.61). Finally, the GA subscale discriminated between children with reported behaviour problems and all other groups and the FA subscale discriminated both children with reported behaviour problems and diagnosed sleep-onset issues from all other groups. Four items on each subscale were reversed scored and mean scores were calculated for each subscale.

There were four adaptations made to the subscales. First, response anchors were revised to ensure consistency with the anchors used on the other measures. In addition, objective reference points were added (e.g., 3-4 nights per week). The original anchors included Never, Once in a while, Sometimes, Quite often, Frequently, if not always, and Always. The revised anchors included Never (Did not happen), Almost Never (less than 1 night/week), Occasionally (1-2 nights/week), Half the Time (3-4 nights/week), Often (5-6 nights/week), and Always (7 nights/week). Second, one item was added to each of the subscales. The item "...reluctantly went to bed" was added to the GA subscale, and the item "...had trouble staying in bed after lights-out" was added to the FA subscale. Third, the following sentence was added to the instructions: Please think about how your child *usually* behaves in the evening when it is time to go to bed and go to sleep. Fourth, the word willing was added to the first item on the GB subscale.

General bedtime and sleep questionnaire. The Bedtime Routines and Sleep Questionnaire was developed for the current study (see Appendix G for a copy of the questionnaire). The scale measures general characteristics of children's bedtime routines and sleep patterns. This questionnaire was informed by previous measures including the Extended Brief Infant Sleep Questionnaire (Sadeh et al., 2009), Bedtime Routines Questionnaire (Henderson & Jordan, 2010), and the Pediatric Sleep Evaluation Questionnaire (Mindell & Owens, 2003). There are 8-items. The first five items asked parents to report on what time their child typically starts getting ready for bed, goes to bed, and wake-ups. Consistent with Mindell & Owens (2003) parents were asked to report times for both weekday and weekend/vacation days. This distinction was made since family schedules may vary significantly between weekdays and weeknights due to work, family, and school commitments. The remaining three items asked parents about different aspects of their children's bedtime routines including: the importance of a bedtime routine to the parent, the consistency of different aspects of their child's bedtime routine (i.e., same activities, same order, same time, and same person), and how difficult each bedtime transition is for the child (i.e., starting bedtime routine, completing bedtime activities, going to bed, and going to sleep). Items were rated on Likert-style response scales.

Bedtime Behavioural Responses Questionnaire. The Bedtime Behavioural Responses Questionnaire (BBRQ) was developed for the current study to measure children's behavioural responses at bedtime (see Appendix H for a copy of the questionnaire). This questionnaire was informed by The Response Style Questionnaire (RSQ; Drabick, Strassberg, & Kees, 2001). Similar to the RSQ, the current questionnaire was divided into two sections. The first section asked parents to report on their child's behaviours when their child *was* following parent directives and requests at bedtime. This section listed 10 behavioural and emotional responses

that are indicative of both situational and committed compliance. The second section asked parents to report on their child's behaviours when their child *was* not following parent directives and requests at bedtime. This section listed 30 behavioural and emotional responses that vary in terms of aversiveness, sophistication, and persuasiveness. The list of responses was based on those included in the RSQ and additional items were added following a review of bedtime resistance and compliance literature, as well as input from the researcher's committee members. For both sections, parents were asked to indicate how frequently their child engaged in each response using a 7-point Likert-style scale ranging from "Never" to "Always".

Procedure

Primary caregivers, who met the study's criteria for participation, were randomly assigned and emailed a unique and secure URL link. The secure links were sent through the software's invite tool and provided access to the questionnaires on the UVic-hosted version of FluidSurveys. Each link was associated with a single email address and a randomly generated ID number. The email addresses were hidden from the researcher to ensure anonymity of survey responses. The URL link directed participants to the study's welcome page. Next, participants navigated to the letter of information for implied consent. Since the online survey software used in this study was owned by an American-based company, participants were assured that their data would be backed-up and stored on a Canadian server. Finally, participants were notified that by completing and submitting the questionnaires their free and informed consent was implied. Next, participants navigated to a set of instructions for parents with more than one child in the target age range of 2-7 years old. These parents were asked to only complete the questionnaires for the oldest child in the target age range. Finally, parents proceeded to the questionnaire portion of the website. This section consisted of nine questionnaires and participants were able to

navigate forwards and backwards in order to review or modify their previously submitted responses. Following completion of the questionnaires, participants were directed to the participant recruitment and debrief page. The recruitment section asked parents to email the researcher if they were willing to pass along a flyer or email to other families who might be interested in participating. The median time to complete the questionnaires was 36 minutes. Although participants were asked to complete questionnaires in one sitting if possible, FluidSurveys allowed participants to complete them across multiple sessions. To increase the probability of a higher response rate, a reminder email was sent to participants asking them to finish completing their questionnaires if they remained incomplete after 7 days. No honorarium was provided to participants.

Results

Overview of Analyses

In the following sections, I first describe procedures used to examine and address missing data. Second, I provide an overview of psychometric analyses for each of the main constructs. Third, I review the screening procedures used to assess normality, including the identification of both univariate and multivariate outliers. Fourth, I report the descriptive statistics and zero-order correlations for general bedtime and sleep variables, as well as each of the main study constructs. Finally, I describe the set of analyses and results dedicated to hypothesis testing.

Because separate regression analyses for each outcome variable were conducted for Hypotheses 3, 4, and 5, the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995) was used to protect against increases in Type I error. The Benjamini-Hochberg procedure provides a sequential adjustment to the critical *p*-values in order to control the false discovery rate. This procedure is suitable for exploratory research as it is less conservative and more powerful when compared to other approaches, such as the Bonferroni correction. A conservative false discovery rate of .10 was used in the current study and results following the Benjamini-Hochberg correction are reported at the end of each section.

Missing Data Analyses

Overall, 0.22% of the data were missing because participants did not respond to an item. A closer examination of the data set revealed that one participant was missing 5.5% of their data, which included non-responses to 70% of the compliance questions on the BBRQ. In addition to the missing data it is worth noting that the Not Applicable (NA) response option was selected for 1% of the CBQ-VF temperament questions. The majority of NA responses were on the “Is afraid of burglars or the boogie man” question, which had a total of 11.5% NA responses.

Patterns of missing data were examined using the Missing Value Analysis in SPSS Version 25. Little's MCAR test was conducted on the entire data set to determine if data were missing completely at random (MCAR); the results were not significant, $\chi^2(8158) = 5547.00$, $p = 1.00$, suggesting that the data were MCAR. Furthermore, since none of the individual items had more than 5% of data missing and the pattern of missing data appeared to be random, additional analyses exploring mean differences between completers and non-completers was not conducted.

To account for the missing data, the Expectation-Maximization (EM) algorithm in SPSS 25.0 was used to impute Maximum Likelihood estimates for missing data points, except those on the CBQ-VSF temperament scale as the scoring for this scale inherently accounts for missing data points. EM is an iterative approach and was chosen because the missing data were judged to be MCAR. Furthermore, this approach is robust and preserves the sample size and consequently, does not result in loss of power due to deleted cases or variables (Tabachnick & Fidell, 2007). It is worth noting that Tabachnick and Fidell (2007) argue that the type of procedure used to address missing data is unlikely to influence the results when the percentage of missing data is less than 5% and the data are missing at random in a larger data set.

Psychometrics

Prior to conducting psychometric analyses, all item means, as well as minimum and maximum scores were assessed to ensure they fell within a plausible range. Standard deviations were screened to ensure adequate variability. One item on the R-PSCQ (i.e., "I let my child know I love them") had a notably small standard deviation (*SD* = .278) and was flagged for possible deletion. The decision was made to remove this item from subsequent analyses given the limited variability, namely the majority (*n* = 120) of parents indicated that this statement was "Very True" and the remaining parents (*n* = 11) indicated that this statement was "True."

Child temperament. The three subscales of the CBQ, notably surgency, negative affect, and effortful control, were assessed for internal consistency. The results demonstrated adequate internal consistency for two of the subscales (surgency α = .790 and negative affect α = .735) and internal consistency slightly below an acceptable criterion of .70 for the third subscale (Nunnally, 1978; effortful control α = .652). The decision to retain all items for the effortful control subscale was made based on the following information: the scale is well validated and widely used in developmental research, the current study is exploratory in nature, and this subscale was included to control for child temperament in the current study and was not a primary factor under investigation. Subsequently, surgency, negative effect, and effortful control mean scores were calculated for each participant. The procedure for calculating the mean scores for these subscales was outlined in the method section.

Perceived stress. The PSS-10 was assessed for internal consistency. The scale demonstrated good internal consistency across all 10 items (α = .869). Subsequently, a PSS-10 mean score was calculated for each participant to be used for the main analyses.

Perceived needs-supportive parenting – global. An exploratory factor analysis (EFA) using principal axis factoring with oblimin rotation was conducted on the 32-items of the R-PSCQ. Direct oblimin rotation was selected since there were theoretical grounds for predicting that the parenting dimensions would be correlated. The Kaiser-Meyer-Olkin measure (KMO) sampling adequacy was good (KMO = .753; Field, 2009). Bartlett's test of sphericity was significant, χ^2 (496) = 1534.46, $p < .001$, indicating that the size of the correlations between items were sufficiently large for conducting an EFA and that the correlation matrix was not an identity matrix. The R-PSCQ theoretically supports both a three and six factor solution; therefore, two EFA analyses were conducted. The first analysis was run and six factors were set

for extraction. Ten factors had eigenvalues exceeding Kaiser's criterion of 1 and in combination they explained 67.44% of the total variance. The scree plot showed a "levelling-off" pattern after the sixth factor, which provided support for retaining six factors. However, the pattern matrix did not support an interpretable six factor solution that corresponded with the six parenting dimensions (e.g., the warmth items loaded on three different factors, seven items failed to load onto a factor with a loading greater than 0.40, and warmth, rejection and coercion items all loaded onto the first factor). The second analysis was run and three factors were set for extraction. Prior to conducting the EFA three factor solution, the five rejection, chaos and cohesion items were reversed scored. The pattern matrix did not support an interpretable solution that corresponded with the three bipolar parenting dimensions (e.g., four of the five coercion items loaded on the warmth-rejection factor and ten items failed to load onto a factor with a loading greater than 0.40). See Table 3 for a summary of the EFA three factor solution.

Since the EFA failed to support an interpretable three or six factor solution, the R-PSCQ was assessed for internal consistency as a single factor construct. The scale demonstrated good internal consistency (α = .858). The descriptive statistics and corrected-item total correlations were examined in order to identify items for potential deletion. Nine items had corrected item-total correlations that were less than r = .3, which suggested that these items be considered for deletion (Field, 2009). The Cronbach's alpha if Item Deleted did not support removal (α < .858), so all items were retained. A R-PSCQ mean score was calculated for each participant. This score is an index for need-supportive parenting in a general day-to-day context. Higher scores represent the use of parenting strategies that are associated with satisfaction of children's basic psychological needs.

Table 3. *Summary of exploratory factor analysis for R-PSCQ using direct oblimin rotation (3 factors selected for extraction).*

	Factors		
	1	2	3
Warmth 1			
Warmth 2	.451		
Warmth 3			
Warmth 4			
Warmth 5			
Warmth 6	.632		
Rejection 8 – RC	.599		
Rejection 9 – RC	.611		
Rejection 10 – RC	.644		
Rejection 11 – RC	.488		
Rejection 12 – RC	.513		
Structure 13		.763	
Structure 14		.822	
Structure 15		.459	
Structure 16		.450	
Structure 17		.420	
Structure 18		.450	
Chaos 19 – RC		.422	
Chaos 20 – RC			
Chaos 21 – RC			
Chaos 22 – RC		.441	
Chaos 23 – RC			
Autonomy-support 24			.559
Autonomy-support 25			.761
Autonomy-support 26			.447
Autonomy-support 27			.746
Autonomy-support 28			.527
Coercion 29 – RC	.734		
Coercion 30 – RC	.475		
Coercion 31 – RC			
Coercion 32 – RC	.428		
Coercion 33 – RC	.643		
Eigenvalues	6.44	3.16	2.35
Percentage of variance	20.11	9.88	7.33

Note: Loadings less than .4 were suppressed;

RC reverse coded

Perceived needs-supportive parenting – bedtime. An exploratory factor analysis (EFA) using principal axis factoring with oblimin rotation was conducted on the 36-items of the BNSP questionnaire. Direct oblimin rotation was selected since there were theoretical grounds for predicting that the parenting dimensions would be correlated. The Kaiser-Meyer-Olkin measure (KMO) sampling adequacy for all variables was good (KMO = .715; Field, 2009); however, four items had individual KMO measures below .5, indicating sampling inadequacy. These items were removed from subsequent analyses and the revised KMO for all variables was good (KMO = .772). Bartlett's test of sphericity was significant, χ^2 (496) = 1567.34, $p < .001$, indicating that the size of the correlations between items were sufficiently large for conducting an EFA and that the correlation matrix was not an identity matrix. The BNSP theoretically supports a three factor solution and therefore, an initial analysis was run and three factors were set for extraction. Nine factors had eigenvalues exceeding Kaiser's criterion of 1 and in combination they explained 64.69% of the total variance. The scree plot showed a "levelling-off" pattern after the second factor, which supported a two factor solution; however, given the criticism of Cattell's scree plot test for being subjective (Hayton, Allen, & Scarpello, 2004) and that there is no theoretical support for a two factor solution, a two factor solution was not pursued and the pattern matrix was examined.. The pattern matrix did not support an interpretable three factor solution that corresponded with the three parenting dimensions (see Table 4 for a summary of the EFA solution).

Since the EFA failed to support an interpretable three factor solution, the BNSP was assessed for internal consistency as a single factor construct. The scale demonstrated good internal consistency (α = .819). The corrected-item total correlations were examined in order to identify items for potential deletion. Nine items had corrected item-total correlations that were

Table 4. *Summary of exploratory factor analysis for BNSP using direct oblimin rotation (3 factors selected for extraction).*

	Factors		
	1	2	3
Structure 24	.629		
Structure 31	.617		
Structure 7	.601		
Structure 35 - RC	.583		
Structure 16	.577		
Structure 14 - RC	.571		
Structure 29	.514		
Structure 10	.481		
Autonomy-Support 1	-.458		
Structure 5	.445		
Involvement 19			
Involvement 3			
Involvement 28			
Autonomy-Support 27 - RC			
Autonomy-Support 36			
Involvement 21 - RC		-.632	
Autonomy-Support 20 - RC		-.579	
Autonomy-Support 32 - RC		-.570	
Autonomy-Support 22 - RC		-.533	
Involvement 17 - RC			
Involvement 13 - RC			
Autonomy-Support 15			
Autonomy-Support 8			
Involvement 25			.590
Involvement 33		-.420	.582
Involvement 34		-.445	.557
Autonomy-Support 12			.495
Involvement 9			.490
Autonomy-Support 6			.450
Autonomy-Support 4			.415
Autonomy-Support 11			
Autonomy-Support 23 - RC			
Eigenvalues	6.89	2.58	2.28
Percentage of variance	21.52	8.06	7.12

Note: Loadings less than .4 were suppressed

RC reverse coded

less than r = .3, which suggested that these items be considered for deletion (Field, 2009). The Cronbach's alpha if Item Deleted supported the removal of five of these items (α > .819), and the remaining four items were retained (α < .819). The reliability testing was repeated for the remaining 27-items and the scale's internal consistency increased (α = .869). Subsequently, a BNSP mean score was calculated for each participant to be used for the main analyses. This score is an index for need-supportive parenting within a bedtime context. Higher scores represent the use of parenting strategies at bedtime that are associated with satisfaction of children's basic psychological needs.

Children's Sleep-Wake Scale. The two subscales of the CSWS were assessed for internal consistency. The corrected item-total correlations on the both subscales were all greater than r = .3, which suggested that all items should be retained (Field, 2009). The Going to Bed (GTB) and Falling Asleep (FA) subscales both demonstrated good internal consistency across all items, α = .910 and α = .888, respectively. Subsequently, GTB and FA mean scores were calculated for each participant to be used for the main analyses.

Bedtime Behavioural Responses Questionnaire (BBRQ).

Noncompliance questions. An exploratory factor analysis (EFA) using principal axis factoring with oblimin rotation was conducted on the 30 noncompliance items of the BBRQ. Direct oblimin rotation was selected since there were theoretical grounds for predicting that the noncompliance strategies would be correlated. The Kaiser-Meyer-Olkin measure (KMO) sampling adequacy was good (KMO = .853; Field, 2009). Bartlett's test of sphericity was significant, χ^2 (435) = 2729.49, p < .001, indicating that the size of the correlations between items were sufficiently large for conducting an EFA and that the correlation matrix was not an identity matrix. The noncompliance literature theoretically supports a four factor solution and

therefore, an initial analysis was run and four factors were set for extraction. Six factors had eigenvalues exceeding Kaiser's criterion of 1 and in combination they explained 69.58 % of the total variance. Cattell scree plot showed a "levelling-off" pattern after the third factor, which provided support for retaining three components. Given the theoretical support for a four factor solution, the possibility that Kaiser's criterion may overestimate the number of components to retain (Hayton et al., 2004), and the criticism of Cattell's scree plot test for being subjective (Hayton et al., 2004), the pattern matrix was examined. The pattern matrix provided evidence for an interpretable four component solution that corresponded with the four noncompliance strategies identified in the literature (i.e., direct defiance, passive noncompliance, simple refusal and, negotiations; Kuczynski & Kochanska, 1990). The only factor that differed somewhat from how it is conceptualized in the literature was simple refusal. This factor had an emotional component to it (i.e., feels sad, feels frustrated and has a temper tantrum) that is not part of the theoretical conceptualization in the literature. Specifically, previous literature characterizes simple refusal as emotionally regulated, (i.e., portraying a neutral affect), and therefore deemed moderately skilled. Given the unexpected emotional component in in the current study, the decision was made to categorize simple refusal as a less sophisticated form of noncompliance for the subsequent analyses.

A close examination of the pattern matrix revealed that there were five items that had notable cross-loadings (i.e., items with loadings greater than .4 on more than one component). Matsunaga (2010) suggests that a small discrepancy between primary and secondary loadings (e.g., less than .30) is a justifiable rationale for deletion of cross-loading items. Therefore, the five items with notable cross-loadings were omitted from the scale, as well as three additional items that failed to load onto at least one factor with a loading greater than .4. The EFA was

repeated on the remaining 22 items and the analysis produced an interpretable four factor solution (see Table 5 for a summary of the final EFA solution). All four factors had eigenvalues exceeding Kaiser's criterion of 1 and in combination they explained 66.03 % of the total variance.

Since the EFA supported an interpretable four factor solution, four factors were separately assessed for internal consistency. All items had corrected-item total correlations greater than $r = .3$, which suggested that all items be retained (Field, 2009). Results demonstrated good internal consistency for the 8-item Direct Defiance ($\alpha = .913$), 6-item Negotiation ($\alpha = .847$), 3-item Passive Noncompliance ($\alpha = .857$), and 5-item Simple Refusal ($\alpha = .809$) subscales. Subsequently, direct defiance, negotiation, passive noncompliance, and simple refusal factor scores were calculated for each participant using a regression approach.

Compliance questions. An exploratory factor analysis (EFA) using principal axis factoring with oblimin rotation was conducted on the 10 compliance items of the BBRQ. Direct oblimin rotation was selected since there were theoretical grounds for predicting that the parenting dimensions would be correlated. The Kaiser-Meyer-Olkin measure (KMO) sampling adequacy was good (KMO = .775; Field, 2009). Bartlett's test of sphericity was significant, $\chi^2 (45) = 500.73$, $p < .001$, indicating that the size of the correlations between items were sufficiently large for conducting an EFA and that the correlation matrix is not an identity matrix. The BBRQ theoretically supports a two factor solution and therefore, an initial analysis was run and two factors were set for extraction. Two factors had eigenvalues exceeding Kaiser's criterion of 1 and in combination they explained 57.23 % of the total variance. The scree plot showed a "levelling-off" pattern after the third component, which supported a three factor solution. The pattern matrix supported an interpretable two factor solution that that

Table 5. *Summary of final exploratory factor analysis for BBRQ noncompliance items using direct oblimin rotation (4 factors selected for extraction).*

	Factors			
	Direct Defiance	Negotiation	Passive Noncompliance	Simple Refusal
Yells 17	.886			
Physically attacks 11	.813			
Threatens to hit 8	.812			
Throws things 18	.733			
Calls names 15	.694			
Seems angry 30	.581			
Tries to break things 2	.557			
Angry voice 22	.519			
Talks with me about why 23		.894		
Provides reasonable explanation 21		.817		
Explains why 1		.655		
Speaks in calm voice 24		.607		
Provides poor excuses 13		.554		
Tries to compromise 16		.526		
Ignores me 29			-1.017	
Acts like didn't hear me 7			-.707	
Avoids what I ask 26			-.581	
Says no without explanation 19				.734
Seems Sad 5				.602
Seems Frustrated 10				.574
Temper Tantrum 20				.543
Neutral "No" 4				.529
Eigenvalues	7.91	3.60	1.66	1.37
Percentage of variance	35.93	16.35	7.54	6.21

Note: Loadings less than .4 were suppressed

corresponded with the two compliance strategies identified in the literature (i.e., committed/self-regulated compliance and situational compliance; Kochanska et al., 1995). One item failed to load onto at least one factor with a loading greater than .4 and was therefore omitted from the scale. The EFA was repeated on the remaining 9 items and the analysis produced an interpretable two factor solution. Both factors had eigenvalues exceeding Kaiser's criterion of 1 and in

combination they explained 61.64 % of the total variance (see Table 6 for a summary of the final EFA solution).

Since the EFA supported an interpretable two factor solution, two factors were separately assessed for internal consistency. The two items with negative factor loadings were reverse scored prior to conducting the reliability testing for the committed compliance subscale, since there were both negative and positive loadings for this factor. Corrected-item total correlations for all items were greater than $r = .3$, which suggested that all items be retained (Field, 2009). Results demonstrated good internal consistency for the 3-item Situational Compliance ($\alpha = .705$) and 6-item Committed/Self-Regulated Compliance ($\alpha = .845$) subscales. Subsequently, situational and committed compliance factors scores were calculated for each participant using a regression approach.

Outliers and Normality

The main study variables were assessed for outliers and normality using both graphical and numerical procedures. To check for the presence of univariate outliers, the mean scores for each variable were converted into z-scores. Scores extending beyond a criterion of ± 3.29 were flagged as univariate outliers (Tabachnick & Fidell, 2007). Two univariate outlier cases were identified and both were on the direct defiance subscale. To check for the presence of multivariate outliers, Mahalanobis Distances were calculated for each participant. These scores were compared to a critical value of 37.70 and two multivariate outlier cases were identified. One of the participants identified as a multivariate outlier was also identified as a univariate outlier. The primary analyses were conducted with and without the inclusion of the three univariate and multivariate outlier cases. When the outcome of the analyses was affected by the outlier cases, results were reported for analyses both with and without the inclusion of outlier

Table 6. *Summary of exploratory factor analysis for BBRQ compliance items using direct oblimin rotation (2 factors selected for extraction).*

	Factors	
	Committed	Situational
Without complaining 1	.857	
Without negative attitude 4	.755	
Appears eager and happy 7	.751	
Reluctantly or with protest 6	-.682	
Without supervision 3	.551	
Appears frustrated or upset 9	-.542	
Needs help staying on task 2		.899
Needs reminders 5		.635
With supervision 10		.523
Eigenvalues	3.81	1.73
Percentage of variance	42.38	19.26

Note: Loadings less than .4 were suppressed

cases. Conversely, when the interpretability was not affected, results were only reported for the analyses including the outlier cases.

To assess the data for normality, skew and kurtosis values for each main study variable were computed and then converted to z-scores. These scores were compared to a critical value of ± 3.29 (Field, 2009). Skew violations were identified for four variables, including direct defiance (z_{skew} = 9.40), passive noncompliance (z_{skew} = 4.11), simple refusal (z_{skew} = 3.52), and CSWS-Falling Asleep (z_{skew} = - 3.49). A kurtosis violation was identified for only the direct defiance variable ($z_{kurtosis}$ = 10.91). In addition, the histogram, P-P plots, and Q-Q plots were also examined. Both plots were examined because P-P plots tend to be better at detecting normality violations in the centre of the distribution, whereas Q-Q plots tend to be better at detecting normality violations in the tails of the distribution. Based on the visual inspection of the histograms direct defiance appeared to be strongly positively skewed. Negotiation, passive noncompliance, and simple refusal all appeared to be moderately positively skewed and CSWS-

Falling Asleep appeared to be moderately negatively skewed. Child's age appeared slightly platykurtic and direct defiance appeared leptokurtic. The P-P and Q-Q plots indicated slight violations from normality for child's age, simple refusal, negotiation, passive noncompliance, CSWS-Going to Bed, and CSWS-Falling Asleep, and a more significant violation for direct defiance. Three separate transformations (i.e., square root, log, and reciprocal) were performed on the direct defiance variable in an attempt to deal with the significant violation from normality. The transformations did not adequately address the departures from normality and therefore, the transformed data were not used for the primary analyses.

Descriptive and Preliminary Analyses

Bedtime and sleep variables. Table 7 presents a summary of the descriptive statistics for general measures of bedtime and sleep. The first section provides a summary of times on both weekdays and weeknights that the children typically start getting ready for bed, go to bed and wake-up. The second section provides a summary of bedtime routine variables, specifically parental rating of bedtime routine importance, as well as the consistency of bedtime activities, order of bedtime activities, who puts the child to bed and child's bedtime. The third section includes parental rating of children's difficulty associated with beginning bedtime routine (e.g., transitioning to bedtime routine), completing bedtime activities (e.g., brushing teeth), getting into bed and going to sleep. Spearman's rank order correlations were conducted to determine if any of these sleep and bedtime variables were associated with child age. Time children begin getting ready for bed (r = .179, p < .05), weekend/vacation bedtime (r = .282, <. 01), difficulty falling asleep (r = -.234, p < .01), and importance of bedtime routine (r = -.173, p < .05) were the only variables associated with child age. Gender differences were examined using independent samples Mann-Whitney U tests and no significant differences were found (p > .05).

Table 7. *Descriptive statistics for bedtime and sleep variables.*

	Min.	Max.	Mean	*SD*
Bedtime and Wake-times				
Typical Time Start Bedtime	18:00	21:00	19:09	0:33
Typical Bedtime (Weeknight)	18:15	22:00	19:51	0:35
Typical Bedtime (Weekend/Vacation)	19:00	22:00	20:07	0:41
Typical Wake-time (Weeknight)	5:30	9:00	6:52	0:33
Typical Wake-time (Weekend/Vacation)	5:30	10:00	7:07	0:43
Bedtime Routine				
Bedtime Routine Importance (Parental Rating)	2	6	5.25	.895
Bedtime Routine Activity Consistency	2	6	5.42	.644
Bedtime Routine Order Consistency	2	6	5.14	.752
Bedtime Consistency	2	6	4.85	.786
Bedtime Person Consistency	4	6	4.89	.704
Bedtime Routine Difficulty				
Starting Bedtime Routine	1	5	2.67	1.04
Completing Bedtime Routine	1	5	2.43	1.02
Going to Bed	1	5	2.40	1.03
Going to Sleep	1	5	2.47	1.12

Notes: Values computed with univariate and multivariate outlier cases, $N = 131$

Main study variables. Descriptive statistics are presented in Table 8 for the main study variables including: bedtime needs-supportive parenting, general needs-supportive parenting, four noncompliance subscales, two compliance subscales, child age, and two CSWS subscales. Descriptive statistics for three child temperament subscales and parental stress are also reported as they will be included as either moderators or covariates in the primary analyses.

Zero-order Spearman's rank order correlations are presented in Table 9 for all the main study variables. Child age was positively associated with negotiation and the two CSWS subscales, and negatively associated with passive noncompliance, simple refusal and situational compliance. Interestingly, child age was not associated with direct defiance or committed compliance. Child negative affect and effortful control were positively and negatively associated with several main study variables, such as general needs-supportive parenting, simple refusal, and committed compliance. Finally parental stress was negatively associated with both needs-supportive parenting measures and committed compliance, and positively associated with all four

Table 8. *Descriptive statistics for covariates, moderators, and main study variables.*

	α	*M*	*SD*	*Scale Range*
Covariates/Moderators				
1. Child Age (Years)	--	4.54	1.64	--
2. Surgency	.790	4.47	.86	1-7
3. Negative Affect	.735	3.91	.85	1-7
4. Effortful Control	.652	5.19	.64	1-7
5. Parental Stress	.869	2.57	.58	1-5
Main Study Variables				
6. BNSP	.869	5.65	.58	1-7
7. R-PSCQ	.858	5.73	.50	1-7
. 8. Direct Defiance[a]	.913	1.56	.69	1-7
9. Negotiation[a]	.847	2.28	.90	1-7
10. Passive Noncompliance[a]	.857	2.70	1.24	1-7
11. Simple Refusal[a]	.809	2.11	.82	1-7
12. Committed Compliance[a]	.845	4.68	.96	1-7
13. Situational Compliance[a]	.705	3.88	1.02	1-7
14. CSWS-GTB	.910	3.95	1.16	1-6
15. CSWS-FA	.888	4.42	1.09	1-6

Notes: Values computed with univariate and multivariate outlier cases; $N = 131$;
a Factor scores used in analyses for noncompliance and compliance variables
BNSP Bedtime Needs-Supportive Parenting Questionnaire; *R-PSCQ* Parents as Social Context Questionnaire – Parent Report; CSWS-GTB Children's Sleep-Wake Scale-Going to Bed Subscale; CSWS-FA Children's Sleep-Wake Scale-Falling Asleep Subscale

noncompliance strategies. Since child age, child temperament (i.e., effortful control and negative affect), and parental stress were associated with several noncompliance and compliance outcome measures, these variables will be included as covariates in the study's main analyses. See Table 9 for additional significant correlations between the main study variables, covariates and moderators.

An additional set of analyses were conducted to examine the relationship between the demographic variables and the six compliance and noncompliance outcome variables. Group differences for all discrete demographic variables were examined using independent samples Mann-Whitney U tests and Kruskal-Wallis tests and no significant differences were identified ($p > .05$), with the exception of parental mental health diagnosis ($U = 931.00$, $p < .001$). Specifically, the results suggested that parents who reported a mental health diagnosis reported

Table 9. *Spearman's Rank Order zero-order correlations for main study variable and covariates/moderators.*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Main Study Variables															
1. Child Age (Yrs.)	--														
2. BNSP	-.063	--													
3. R-PSCQ	-.014	.624**	--												
4. Direct Defiance	-.095	-.371**	-.401**	--											
5. Negotiation	.299**	-.115	-.016	.213*	--										
6. Passive	-.190*	-.301**	-.304**	.376**	.292**	--									
7. Simple Refusal	-.322**	-.398**	-.377**	.654**	.304**	.567**	--								
8. Committed	.132	.433**	.415**	-.437**	-.233**	-.607**	-.674**	--							
9. Situational	-.259**	-.055	-.107	.036	.140	.429**	.308**	-.353**	--						
10. CSWS - GTB	.188*	.519**	.404**	-.430**	-.188*	-.467**	-.637**	.651**	-.262**	--					
11 CSWS - FA	.284**	.462**	.400**	-.359**	-.118	-.455**	-.547**	.512**	-.256**	.703**	--				
Covariates/Moderators															
12. Surgency	-.070	-.011	-.090	.135	.052	.139	.126	.031	.087	-.128	-.087	--			
13. Negative Affect	.260**	-.267**	-.412**	.411**	.205*	.104	.251**	-.280**	-.051	-.197*	-.221*	-.092	--		
14. Effortful Control	.085	.116	.199*	-.133	.099	-.176*	-.197*	.196*	-.079	.114	.140	-.249**	-.048	--	
15. Parental Stress	-.002	-.313**	-.476**	.262**	.172*	.202*	.257**	-.304**	.159	-.211*	-.221*	0.032	.258**	.107	--

Notes: Values computed with univariate and multivariate outlier cases; $N = 131$; Higher scores on both CSWS subscales indicate less sleep related behavioural issues

BNSP Bedtime Needs-Supportive Parenting Questionnaire; R-PSCQ Revised - Parents as a Social Context Questionnaire; *CSWS-GTB* Children's Sleep-Wake Scale-Going to Bed Subscale; *CSWS-FA* Children's Sleep-Wake Scale-Falling Asleep Subscale

* $p < .05$; ** $p < .01$

increased frequencies of situational compliance. The relationships between the continuous demographic variables and the six compliance and noncompliance outcome variables were examined using Zero-order Spearman's rank order correlations and all relationships failed to reach significance ($p > .05$), with the exception of the positive relationship between caregiver age and negotiation ($r = .259$, $p < .001$). Given the significant relationships with the outcome variables and a theoretical basis for the inclusion of these variables as covariates, the decision was made to include parental mental health diagnosis and caregiver age as additional covariates in the main analysis when situational compliance and negotiation were the respective outcome variables.

Main Study Analyses

Hypothesis #1: Frequency of general needs-supportive parenting practices positively predicts with frequency of needs-supportive parenting practices at bedtime. A Spearman's rank order correlation was conducted to assess the relationship between the R-PSCQ and BNSP questionnaire. This analysis indicated that there was a strong positive correlation between general needs-supportive parenting and needs-supportive parenting at bedtime, $r = .624$, $p < .001$. This finding provides preliminary evidence of convergent validity for the newly constructed BNSP measure.

Hypothesis #2: Going to Bed (GTB) and Falling Asleep (FA) subscale scores of the Children's Sleep-Wake Cycle Scale (CSWS) negatively predict frequency of all four noncompliance behaviours, as well as situational compliance behaviours at bedtime. In addition, GTB and FA subscale scores positively predicts frequency of committed compliance behaviours at bedtime. Spearman's rank order correlations were conducted to assess the relation between the CSWS-GTB and CSWS-FA subscales, the four noncompliance

measures, as well as the two compliance measures. These analyses indicated that CSWS-GTB negatively predicted the four noncompliance strategies, as well as situational compliance. Conversely, CSWS-GTB positively predicted committed compliance. All of these correlations were significant at the $p < .01$ level, except for the relationship with negotiation, which was significant at the $p < .05$ level. A similar pattern was found for the CSWS-FA subscale, with the exception of the relationship between negotiation and CSWS-FA which failed to reach significance (see Table 9 for a summary of the correlation results). These findings provide preliminary evidence of convergent validity for the newly constructed BBRQ.

Hypothesis #3a: Child age positively predicts frequency of committed compliance behaviours at bedtime. Relevant assumptions were examined prior to conducting a hierarchical multiple regression. The sample size of 131 participants exceeded the minimum sample size recommended by Green (1991). Screening tests indicated that the data met the assumptions of independent errors (Durbin-Watson value = 1.84) and multicollinearity (all tolerance values were < 1.00 and all VIF values were close to 1.00; Field, 2009). Finally, examination of the residual scatter plot, histogram, and P-P plot indicated that the assumptions of linearity, normality and homoscedasticity of residuals were satisfied (Field, 2009; Tabachnick & Fidell, 2007).

To examine the relationship between child age and committed compliance, a hierarchical multiple regression analysis was conducted. The covariates, notably effortful control, negative affect and parenting stress, were entered simultaneously at the first step of the model and age was entered at the second step. The regression statistics are reported in Table 10. At Step 1, the combination of negative affect, effortful control and parental stress accounted for a significant portion of variance in committed compliance, F (3, 127) = 9.80, $p < .001$, $R^2 = .188$. The model remained significant with the addition of age at Step 2, F (4, 126) = 8.50, $p < .001$, $R^2 = .213$.

Including age in the model accounted for a significant portion of additional variance in committed compliance (ΔR^2 = .025, F (1, 126) = 3.93, p < .05) and this finding remained statistically significant following the Benjamini-Hochberg correction. These findings suggest that age uniquely predicted frequency of committed compliance use when controlling for effortful control, negative affect and parenting stress. It is worth noting that the analysis yielded different findings when the univariate and multivariate outliers were removed from the dataset. Although the models at both Step 1 and 2 remained significant, the change in explained variance with the addition of age at Step 2 was no longer significant, (ΔR^2 = .022, F (1, 123) = 3.37, p = .069).

Hypothesis #3b: Child age negatively predicts frequency of situational compliance behaviours at bedtime. Relevant assumptions were examined prior to conducting the analysis and all assumptions were met according to the criteria outlined in the previous section. To examine the relationship between child age and situational compliance, a hierarchical multiple regression analysis was conducted. The covariates, notably effortful control, negative affect, parenting stress, and caregiver mental health were entered simultaneously at the first step of the model and age was entered at the second step. The regression statistics are reported in Table 10. At Step 1, the combination of negative affect, effortful control, parental stress and caregiver mental health accounted for a significant portion of variance in situational compliance, F (4, 126) = 4.07, p < .01, R^2 = .114. The model remained significant with the addition of child age at Step 2, F (5, 125) = 5.16, p < .01, R^2 = .171. Including age in the model accounted for a significant portion of additional variance in situational compliance (ΔR^2 = .057, F (1, 125) = 8.53, p < .01) and this finding remained statistically significant following the Benjamini-Hochberg correction. These findings suggest that child age uniquely predicted frequency of situational compliance use

Table 10. *Summary of hierarchical regression analyses for variables predicting committed and situational compliance scores.*

	Model 1			Model 2		
Variable	*B*	*SE(B)*	*β*	*B*	*SE(B)*	*β*
Committed Compliance						
Constant	.155	.743		-.041	.741	
Negative Affect	-.216	.092	-.196*	-.265	.094	-.241**
Effortful Control	.344	.118	.235**	.321	.117	.219**
Parental Stress	-.428	.134	-.267**	-.395	.133	-.247**
Child Age				.093	.047	.163*
R^2		.188			.213	
F for ΔR^2		9.80**			3.93*	
Situational Compliance						
Constant	.101	.793		.340	.765	
Negative Affect	-.114	.093	-.107	-.041	.094	-.039
Effortful Control	-.184	.121	-.129	-.147	.118	-.103
Parental Stress	.275	.139	.176	.220	.137	.141
Caregiver Mental Health	.486	.186	.225**	.526	.182	244**
Child Age				-.138	.047	-.230**
R^2		.114			.171	
F for ΔR^2		4.07**			8.53**	

Notes: Values computed with univariate and multivariate outlier cases; $N = 131$
*$p < .05$. ** $p < .01$.

at bedtime when controlling for effortful control, negative affect, parenting stress, and caregiver mental health. Although parental stress did not significantly predict situational compliance in either model when the univariate and multivariate outliers were included, it is worth noting that parental stress significantly predicted situational compliance in both the first ($\beta = .208$, < . 05) and second models ($\beta = .177$, $p < .05$) when the outliers were removed from the dataset.

Hypothesis #4a: Child age positively predicts frequency of sophisticated noncompliance behaviours at bedtime. Relevant assumptions were examined prior to conducting the analyses and all assumptions were met according to the criteria outlined in the previous section. To examine the relationship between child age and negotiation, a hierarchical

multiple regression analysis was conducted. The covariates, notably effortful control, negative affect, parental stress, and caregiver age were entered simultaneously at the first step of the model and child age was entered at the second step. The regression statistics are reported in Table 11. At Step 1, the combination of negative affect, effortful control, parental stress, caregiver age did account for a significant portion of variance in negotiation scores, F (4, 126) = 3.76, $p < .01$, $R^2 = .107$. The model remained significant with the addition of child age at Step 2, F (5, 125) = 3.88, $p < .01$, $R^2 = .134$. Including age in the model accounted for a significant portion of additional variance in negotiation ($\Delta R^2 = .028$, F (1, 125) = 4.02, $p < .05$) and this finding remained significant following the Benjamini-Hochberg correction. These findings suggest that child age uniquely predicted frequency of negotiation use when controlling for effortful control, negative affect, parenting stress, and parent age. It is worth noting that the addition of child age in the second model did not account for a significant portion of additional variance in negotiation scores ($p = .062$) when the univariate and multivariate outliers were removed from the dataset.

Hypothesis #4b: Child age negatively predicts frequency of less sophisticated noncompliance behaviours at bedtime. Relevant assumptions were examined prior to conducting the analyses and all assumptions were met according to the criteria outlined in the previous section for passive noncompliance and simple refusal. Conversely, direct defiance failed to meet the assumptions of linearity, normality and homoscedasticity of residuals. To examine the relationship between child age and the three less sophisticated noncompliance strategies (i.e., direct defiance, passive noncompliance and simple refusal) three separate hierarchical multiple regression analyses were conducted. The covariates, notably effortful control, negative affect and parenting stress, were entered simultaneously at the first step of the

Table 11. *Summary of hierarchical regression analyses for age predicting sophisticated (i.e., negotiation) and less sophisticated (i.e., direct defiance, passive noncompliance and simple refusal) noncompliance scores.*

	Model 1			Model 2		
Variable	*B*	*SE(B)*	*β*	*B*	*SE(B)*	*B*
Negotiation						
Constant	-3.82	1.06		-3.49	1.059	
Negative Affect	.173	.098	.154	.114	.101	.102
Effortful Control	.143	.126	.096	.119	.125	.080
Parental Stress	.123	.144	.075	.150	.143	.092
Caregiver Age	.057	.018	.263**	.042	.020	.195*
Child Age				.109	.054	.187*
R^2		.107			.134	
F for ΔR^2		3.76**			4.02*	
Direct Defiance						
Constant	-.617	.765		-.285	.743	
Negative Affect	.287	.094	.253**	.371	.094	.326**
Effortful Control	-.298	.121	-.197*	-.260	.117	-.172*
Parental Stress	.406	.138	.245**	.351	.133	.212**
Child Age				-.158	.047	-.268**
R^2		.194			.260	
F for ΔR^2		10.17**			11.27**	
Passive Noncompliance						
Constant	.415	.830		.672	.823	
Negative Affect	.036	.102	.032	.101	.104	.087
Effortful Control	-.287	.132	-.187*	-.257	.130	-.167*
Parental Stress	.363	.149	.216*	.320	.148	.190*
Child Age				-.122	.052	-.204*
R^2		.080			.119	
F for ΔR^2		3.70*			5.49*	
Simple Refusal						
Constant	.390	.748		.846	.694	
Negative Affect	.167	.092	.155	.282	.088	.262**
Effortful Control	-.358	.119	-.250**	-.305	.110	-.213**
Parental Stress	.318	.135	.203*	.242	.125	.154
Child Age				-.217	.044	-.388**
R^2		.141			.279	
F for ΔR^2		6.93**			24.25**	

Notes: Values computed with univariate and multivariate outlier cases; $N = 131$
*$p < .05$. ** $p < .01$.

model and child age was entered at the second step. The regression statistics are reported in Table 11.

At Step 1, the combination of negative affect, effortful control and parental stress accounted for a significant portion of variance in all three noncompliance scores. When age was included at Step 2, the models remained significant and the models accounted for a significant portion of additional variance in direct defiance ($\Delta R^2 = .066$, F (1, 126) = 11.27, $p < .01$), passive noncompliance ($\Delta R^2 = .038$, F (1, 126) = 5.49, $p < .05$.) and simple refusal ($\Delta R^2 = .139$, F (1, 126) = 24.25, $p < .01$) and these findings remained significant following the Benjamini-Hochberg correction. These findings suggest that child age uniquely predicted frequency of direct defiance, passive noncompliance, and simple refusal strategies when controlling for effortful control, negative affect, and parental stress. It is worth noting that the control variables in the first model did not account for a significant portion of additional variance in passive noncompliance scores ($p = .062$) when the univariate and multivariate outliers were removed from the dataset.

Hypothesis #5a: Needs-supportive parenting at bedtime negatively predicts frequency of less sophisticated noncompliance behaviours and positively predicts frequency of sophisticated noncompliance behaviours at bedtime above and beyond child age. Relevant assumptions were examined prior to conducting the analyses and all assumptions were met according to the criteria outlined in the previous section for simple refusal and negotiation. Conversely, direct defiance and passive noncompliance failed to meet the assumptions of linearity, normality and homoscedasticity of residuals. To examine the relationship between needs-supportive parenting practices at bedtime and children's use of noncompliance strategies, separate hierarchical regression analyses were conducted for each noncompliance strategy. The

covariates, notably child age, effortful control, negative affect and parenting stress, were entered simultaneously at the first step of the model and BNSP scores were entered at the second step. In addition, for the model including negotiation, caregiver age was also entered as a covariate in the first step. The regression statistics are reported in Tables 12 and 13, for less sophisticated and sophisticated forms of noncompliance respectively.

At Step 1, the combination of all four covariates accounted for a significant portion of variance in all four noncompliance scores. When BNSP was included at Step 2, three models remained significant and accounted for a significant portion of additional variance in direct defiance ($\Delta R^2 = .060$, F (1, 125) = 11.05, $p < .01$), passive noncompliance ($\Delta R^2 = .042$, F (1, 125) = 6.19, $p < .05$.) and simple refusal ($\Delta R^2 = .071$, F (1, 125) = 13.73, $p < .01$) scores and these findings remained significant following the Benjamini-Hochberg correction. Although the negotiation model remained significant at Step 2, BSNP did not account for a significant portion of additional variance in negotiation ($\Delta R^2 = .002$, F (1, 125) = .250, $p = .618$). These findings suggest that needs-supportive parenting uniquely predicted frequency of direct defiance, passive noncompliance and simple refusal strategy use when controlling for effortful control, negative affect, parental stress and child age. Conversely, needs-supportive parenting did not uniquely predict negotiation scores.

Hypothesis #5b: The relationship between needs-supportive parenting and frequency of noncompliance behaviours at bedtime is moderated by child age. Specifically, needs-supportive parenting at bedtime negatively predicts frequency of less sophisticated noncompliance behaviours for older children but not younger children at bedtime, as well as positively predicts frequency of sophisticated noncompliance behaviours for older children but not younger children at bedtime. To test the hypothesis that child age moderated

Table 12. *Summary of hierarchical regression analyses for BNSP predicting less sophisticated noncompliance scores above and beyond age (Models 1 & 2), as well as hierarchical regression analyses for BNSP predicting less sophisticated noncompliance scores with age as a moderator (Models 3).*

	Model 1			Model 2			Model 3		
Variable	*B*	*SE(B)*	*β*	*B*	*SE(B)*	*β*	*B*	*SE(B)*	*β*
Direct Defiance									
Constant	-.285	.743		2.50	1.10		.006	.071	
Parental Stress	.351	.133	.212**	.212	.135	.128	.206	.135	.124
Negative Affect	.371	.094	.326**	.325	.091	.286**	.305	.092	.268**
Effortful Control	-.260	.117	-.172*	-.200	.114	-.132	-.191	.114	-.126
Child Age	-.158	.047	-.268**	-.165	.045	-.280**	-.164	.045	-.278**
BNSP				-.447	.134	-.268**	-.443	.134	-.266**
ChildAge X BNSP							.109	.079	.104
R^2		.260			.320			.330	
F for ΔR^2		11.06**			11.05**			1.91	
Passive Noncomplianc									
Constant	.672	.823		3.02	1.24		.009	.080	
Parental Stress	.320	.148	.190*	.203	.152	.121	.193	.151	.115
Negative Affect	.101	.104	.087	.063	.103	.054	.031	.104	.027
Effortful Control	-.257	.13	-.167	-.206	.129	-.134	-.194	.128	-.126
Child Age	-.122	.052	-.204*	-.128	.051	-.215*	-.126	.051	-.210*
BNSP				-.377	.152	-.223*	-.372	.150	-.220*
ChildAge X BNSP							.166	.089	.155
R^2		.119			.160			.183	
F for ΔR^2		4.24*			6.19**			3.50	
Simple Refusal									
Constant	.845	.694		3.71	1.02		.007	.066	
Parental Stress	.242	.125	.154	.099	.125	.063	.092	.124	.059
Negative Affect	.282	.088	.262**	.235	.085	.218**	.212	.085	.197*
Effortful Control	-.305	.110	-.213**	-.244	.106	-.170*	-.235	.105	-.164*
Child Age	-.217	.044	-.388**	-.224	.042	-.401**	-.222	.042	-.398**
BNSP				-.461	.124	-.292**	-.457	.124	-.290**
ChildAge X BNSP							.118	.073	.119
R^2		.279			.325			.364	
F for ΔR^2		12.21**			13.73**			2.63	

Notes: Values computed with univariate and multivariate outlier cases; $N = 131$; Mean centred scores used for Parental Stress, Negative Affect, Effortful Control, BNSP, and Child Age
BNSP Bedtime Needs-Supportive Parenting Questionnaire
*$p < .05$. ** $p < .01$.

Table 13. *Summary of hierarchical regression analyses for BNSP predicting sophisticated noncompliance scores above and beyond age (Models 1 & 2), as well as hierarchical regression analyses for BNSP predicting sophisticated noncompliance scores with age as a moderator (Models 3).*

	Model 1			Model 2			Model 3		
Variable	*B*	*SE(B)*	*β*	*B*	*SE(B)*	*β*	*B*	*SE(B)*	*β*
Negotiation									
Constant	-3.49	1.06		-3.03	1.40		.001	.080	
Parental Stress	.150	.143	.092	.127	.150	.078	.126	.151	.077
Negative Affect	.114	.101	.102	.16	.103	.095	.11	.105	.091
Effortful Control	.119	.125	.080	.129	.127	.086	.130	.128	.088
Caregiver Age	.042	.020	.195*	.043	.020	.196*	.042	.020	.194*
Child Age	.109	.054	.187*	.107	.054	.185	.108	.055	.186*
BNSP				-.075	.150	-.046	-.074	.150	-.045
ChildAge X BNSP							.025	.089	.024
R^2		.134			.136			.137	
F for ΔR^2		3.88**			.250			.078	

Notes: Values computed with univariate and multivariate outlier cases; $N = 131$; Mean centred scores used for Parental Stress, Negative Affect, Effortful Control, BNSP, Caregiver Age, and Child Age
BNSP Bedtime Needs-Supportive Parenting Questionnaire
** $p < .01$.

the relationship between needs-supportive parenting practices at bedtime and children's use of noncompliance strategies, separate hierarchical multiple regression analyses were conducted for each of the four noncompliance strategies. The following approach was used for each analysis. Effortful control, negative affect and parenting stress were entered as control variables at the first step of the model. In addition, caregiver age was also entered as a covariate in the first step for the model including negotiation. At the second step, BNSP and child age were entered as predictor variables. To avoid potential issues of multicollinearity and to aid interpretation, these variables were mean centred before an interaction term between BNSP and child age was created (Aiken & West, 1991). At the third and final step, the interaction term was entered. The results are discussed below by type of noncompliance strategy and the regression statistics are reported in Tables 12 and 13, for less sophisticated and sophisticated forms of noncompliance respectively.

Direct defiance. The models at Step 1 with the covariates (F (3, 127) = 10.17, $p < .01$, R^2 = .194), and Step 2 with the addition of BNSP and age (F (5, 125) = 11.76 $p < .01$, R^2 = .320) both accounted for a significant portion of variance in direct defiance scores. The model remained significant with the addition of the interaction term between BNSP and age, F (6, 124) = 10.19, $p < .01$, R^2 = .330, however, the change in explained variance was not significant (ΔR^2 = .010, F (1, 124) = 1.91, p = .170). The results suggest that age is not a significant moderator of the relationship between needs-supportive parenting at bedtime and frequency of direct defiance behaviours at bedtime in early childhood.

Passive noncompliance. The models at Step 1 with the covariates (F (3, 127) = 3.70, $p <$ .05, R^2 = .080), and Step 2 with the addition of BNSP and age (F (5, 125) = 4.77, $p < .01$, R^2 = .160) both accounted for a significant portion of variance in passive noncompliance scores. The model remained significant with the addition of the interaction term between BNSP and age, F (6, 124) = 4.64, $p < .01$, R^2 = .183, however, the change in explained variance was not significant (ΔR^2 = .023, F (1, 124) = 3.50, p = .064). It is worth noting that when univariate and multivariate outliers were removed from the data set, the model at Step 1 was not significant (p = .055). The results suggest that age is not a significant moderator of the relationship between needs-supportive parenting at bedtime and frequency of passive noncompliance behaviours at bedtime in early childhood.

Simple refusal. The models at Step 1 with the covariates (F (3, 127) = 6.93, $p < .001$, R^2 = .141) and Step 2 with the addition of BNSP and age (F (5, 125) = 13.50, $p < .001$, R^2 = .351) both accounted for a significant portion of variance in simple refusal scores. The model remained significant with the addition of the interaction term between BNSP and age, F (6, 124) = 11.84, $p < .001$, R^2 = .364, however, the change in explained variance was not significant (ΔR^2 = .013, F

(1, 124) = 2.63, p = .108). The results suggest that age is not a significant moderator of the relationship between needs-supportive parenting at bedtime and frequency of simple refusal behaviours at bedtime in early childhood.

Negotiation. The models at Step 1 with the covariates (F (4, 126) = 3.76, p < .01, R^2 = .107) and Step 2 with the addition of BNSP and age (F (6, 124) = 3.26, p < .01, R^2 = .136) both accounted for a significant portion of variance in negotiation scores. The model remained significant with the addition of the interaction term between BNSP and age, F (7, 123) = 2.30, p < .01, R^2 = .137, however, the change in explained variance was not significant (ΔR^2 = .001, F (1, 123) = .08, p = .781). The results suggest that age is not a significant moderator of the relationship between needs-supportive parenting at bedtime and negotiation use in early childhood.

Discussion

The current study examined the relationship between parenting practices and bedtime resistance in early childhood. In contrast to previous studies, the current research took a novel approach by adopting both a developmental perspective and a SDT framework. The specific aims were threefold. The first aim of this study was to develop and provide preliminary support for two new research tools: a measure of parenting behaviours at bedtime and a measure of bedtime behaviours in early childhood. The second aim was to investigate whether child age was related to qualitatively different forms of compliance and noncompliance behaviours at bedtime. The final aim was to investigate whether parenting practices predicted noncompliance behaviours at bedtime in early childhood and if so, whether age moderated this relationship. In this section, the findings with regard to the five main hypotheses are summarized and interpreted in the context of previous research and current theory. Finally, study limitations and directions for future research will be discussed.

Hypothesis #1: Validation of Bedtime Parenting Measure

Findings from the current study provided preliminary evidence for the reliability and convergent validity of the newly constructed measure of needs-supportive parenting at bedtime in early childhood (BNSP). Reliability analyses demonstrated good internal consistency and the EFA supported a single-factor solution of needs-supportive parenting. This factor structure is consistent with findings from previous SDT research in other settings (e.g., Van den Broeck et al., 2008). Finally, correlational analyses provided preliminary evidence of construct validity of the BNSP. Specifically, caregivers' scores on the BNSP were concordant with their scores on a previously validated measure of general needs-supportive parenting. Together these results provide preliminary support for the use of the BNSP as a research tool. However, additional

research is needed that addresses this issue. Specifically, studies should examine the test-retest reliability and the discriminant validity of this measure. In addition, the factor structure should be replicated with other samples using a confirmatory factor analysis.

It should be noted that the current findings highlight a discrepancy in the literature regarding the factor structure of perceived need support. In the current study, it was anticipated that the bedtime parenting items would load onto a three-factor model corresponding to the most common theoretical conceptualization of perceived need support; however, contrary to this expectation, the EFA supported a single-factor solution. Although SDT research typically conceptualizes needs-supportive parenting using a three-factor model, some SDT researchers argue that a single-factor (e.g., Deci et al., 2001; Kasser et al., 1992, Vansteenkiste et al., 2007) or even a six-factor solution (e.g., Skinner, Johnson, & Snyder, 2005) is more appropriate. Support for combining the three dimensions into a single, overarching factor comes from research demonstrating that items measuring perceived needs support sometimes load onto a single-factor (e.g., Van den Broeck et al., 2008). In addition, these three dimensions tend to be so highly correlated that some researchers argue that they appear to represent a single-factor (Gagne, 2003; Martens & Kirchner, 2004). It is possible that the factor structure discrepancy may reflect a theoretical distinction that lacks practical significance in many applied settings. Stated differently, a theoretical underpinning of SDT is the idea that satisfaction of all three innate needs is necessary for needs-fulfillment. This assumption necessitates the conceptualization of each need as separate constructs at a theoretical level. Conversely, in applied settings this distinction may add unnecessary complexity since researchers are often not interested examining the contribution of individual needs. Therefore, in most circumstances an overall measure of perceived needs-satisfaction maybe adequate and produce similar results to a

three- or six-factor measure. That said, given that this is the first study to examine bedtime parenting practices from an SDT perspective, additional research is needed to explore the factor structure of parenting practices at bedtime, as well as the practical utility of a single- versus three- versus six-factor conceptualization of need-supportive parenting.

It is worth noting that the results of the EFA and, consequently, the validity of a single-factor model of needs-supportive parenting at bedtime should be interpreted with caution. Although a range of scores were reported on the individual items of the BNSP, the variability of the total scores was small. Accordingly, the scale did not appear to capture the full-range of bedtime parenting behaviours. There are two potential explanations for the lack of variability. The wording of the questions could have facilitated socially desirable responses, therefore restricting the range of responses deemed socially acceptable by the participants. Alternatively, the lack of variability could simply reflect the homogeneity of the parent sample. Specifically, the current study used both convenience and snowball sampling, which resulted in a sample that was comprised primarily of middle to upper class, well educated, Caucasian, married mothers. Finally, the possibility exists that the sample size in the current study may not have been sufficient to detect the anticipated three-factor solution given the modest size of the factor loadings and the homogenous sample. Nevertheless, given the previous support for a single-factor model it was reasonable to proceed with a single-factor solution given the exploratory nature of the current study.

Hypothesis #2: Validation of Bedtime Behaviours Measure

The bedtime behaviours measure (BBRQ) developed for use in the current study shows promise as a valid tool for discriminating between distinct forms of bedtime noncompliance and compliance behaviours. With the exception of one construct, the EFA grouped the BBRQ items

in a logical and theoretically consistent pattern. The noncompliance items loaded onto four factors and the compliance items loaded onto two factors as expected. Specifically, items related to overt verbal or nonverbal opposition accompanied by a strong negative affect, for example yelling, name calling and breaking things, loaded onto the first factor. This factor is consistent with the theoretical conceptualizations of direct defiance (Kuczynski et al., 1987) and overt confrontational noncompliance (Drabick et al., 2001). Likewise, items consistent with the theoretical conceptualizations of passive noncompliance and negotiation[1] (Kuczynski et al., 1987) loaded on their respective factors as expected. There was some discrepancy regarding the items that loaded onto the fourth noncompliance factor, labelled simple refusal. In the current study, the simple refusal factor encompassed an emotional component that is inconsistent with the previous literature. Specifically, this factor was defined by a grouping of items that represented a brief verbal refusal (i.e., "No) accompanied by neutral affect, sadness or frustration. This conceptualization is not consistent with the literature. In the literature simple refusal refers to responses characterized by "...verbal refusal without negative affect" (Kuczynski et al., 1987, p. 802). Alternatively, Drabick and colleagues (2001) describe a similar construct, labelled emotionally regulated noncompliance, which is characterized by children controlling their emotions while refusing to obey a directive. It is possible that this discrepancy is an anomaly associated with the current sample. On the other hand, this inconsistent finding could also suggest a further differentiation with respect to noncompliance responses. Specifically, a less emotionally regulated type of refusal may need to be added to the different types of refusals distinguished in previous research.

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[1] It is worth noting that these factors are also respectively referred to as covert/sneaky noncompliance and verbally skilled noncompliance in the literature (Drabick et al., 2001).

Preliminary support for the BBRQ as a research tool was obtained in the current study. Consistent with the original prediction, BBRQ scores were associated with scores on an established behavioural sleep measure (i.e., Children's Sleep-Wake Scale; CSWS). Specifically, children who exhibited higher frequencies of bedtime noncompliance, as well as situational compliance were more likely to struggle when it was time to go to bed and to fall asleep. This trend held for all four types of noncompliance with one exception: increased negotiation behaviours at bedtime were not associated with difficulties falling asleep. Moreover, committed compliance behaviours at bedtime corresponded to fewer problems associated with going to bed and falling asleep. It should be noted that a discernable explanation for the non-significant finding between falling asleep and negotiation scores was not identified, even though several possible explanations were explored. Overall, these findings provide preliminary support for the BBRQ as a measure of bedtime behaviours; however, additional research is needed to validate this measure and demonstrate its ability to consistently and accurately discriminate between different types of bedtime noncompliance and compliance.

Hypotheses #3 and #4: Child Age as a Predictor of Bedtime Behaviours

Findings from the current study supported the hypothesis that child age would uniquely predict frequency of negotiation behaviours and committed compliance at bedtime and negatively predict frequency of passive noncompliance, simple refusal, direct defiance, and situational compliance at bedtime. Although the findings in previous literature are not entirely consistent, when viewed together a general pattern emerges. Specifically, passive noncompliance, direct defiance, overt protest, and situational compliance appear to decrease with age, whereas committed compliance and negotiation appear to increase with age (Kochanska & Aksan, 1995; Kochanska et al., 1995; Kuczynski et al., 1987). It is worth noting that there is one

study involving preschool age children that found no relationship between behavioural responses and children's age (Drabick et al., 2001).

The findings from the current study are consistent with the general trend identified in the previous literature. Specifically the findings suggest that the strategies older children used to resist and negotiate parent directives were emotionally regulated, less aversive, and more sophisticated than those employed by younger children. In addition, older children demonstrated an increasing desire to whole-heartedly comply with parental directives. This pattern of findings highlights the importance of investigating bedtime noncompliance and compliance from a developmental perspective and the utility of a differentiated model of bedtime behaviours.

It is important to mention that the results of the current study showed a slightly different pattern when the three univariate and multivariate outliers were omitted from the analyses: age no longer uniquely predicted committed compliance and negotiation. There are several possible explanations for the varied results. The effect sizes for these two variables were particularly small (committed compliance $\Delta R^2 = .022$, and negotiation $\Delta R^2 = .024$) and could account for the non-significant results upon removal of the three outliers. It is possible that the homogeneity of the sample contributed to a lack of variability in the data set and in turn contributed to the small effect sizes. Alternatively, the lack of variability could be associated with the age of the children in the current sample. It has been argued that compared to less sophisticated forms of compliance and noncompliance, negotiation and committed compliance are dependent on more developmentally advanced processes and skills, such as perspective taking, emotion regulation, and internalization (Kochanska, 2002; Nguyen & Nguyen, 2016). Therefore, it is possible that negotiation and committed compliance are only beginning to emerge during this developmental period and that the age range was too restrictive, which could account for the lack of variability

and smaller effect sizes in the current sample.

Hypothesis #5: Parenting Practices as a Predictor of Bedtime Noncompliance

Current findings showed that need-supportive parenting practices at bedtime were associated with children's noncompliance behaviours at bedtime, with the exception of negotiation. Importantly, these relationships were in the predicted direction and remained significant even when controlling for child age. Specifically, parents who perceived themselves as utilizing a need-supportive approach with their children at bedtime tended to report fewer instances of less sophisticated noncompliance responses from their children at bedtime. One might argue that these findings suggest that parenting practices influence how children respond to parent directives at bedtime. Kuczynski and Kochanska (1990) propose that parenting practices may serve a different function in the short-term versus the long-term. When new responses are being learned and acquired, notably in the toddler years, parenting practices may influence children's use of different noncompliance responses through observational learning. For example, children may experiment with different forms of noncompliance modelled by others. However, in the long-term, parenting strategies may serve a motivational function. Overtime, different parenting approaches may differentially strengthen, modify, or weaken the use of acquired strategies, in turn, influencing the type of strategies children select and more importantly why they select them. It is worth noting that this explanation assumes directionality of the relationship between parenting practices and children's behaviours. However, the cross-sectional design does not allow us to rule out several possible directions of influence among the constructs. It may be the case that overtime a child's responses may influence the type of strategies and approach a caregiver adopts. Alternatively, in line with a transactional (Sameroff, 2009) or systems (Bronfenbrenner & Morris, 2006) framework, it is possible that the direction of

the relationship may vary during different developmental periods or that both children' and parents' behaviours influence each other. Future research is needed to explore the directionality of this relationship.

The non-significant finding with respect to negotiation is not entirely unexpected. This response is more developmentally skilled and sophisticated than the other forms of noncompliance (Kopp, 1982; Kuczynski et al., 1987). Specifically, compared to other responses, negotiation appears to rely more heavily on both language and self-regulatory skills. Therefore, it could be argued that the influence of parenting practices on the use of negotiation strategies will only become apparent once a child has acquired the necessary skills and is developmentally ready (Kopp, 1982; Kuczynski & Kochanska, 1990). This assumption highlights a potential direction for future research. Researchers could explore the relationship between parenting practices and negotiation longitudinally. Specifically, it would be interesting to examine how needs-supportive parenting practices might influence the development and quality of children's negotiation skills, as well as their motivation to select negotiation over other noncompliance strategies.

It was hypothesized that parenting practices would predict noncompliance behaviours for older but not younger children. Contrary to this prediction, findings from the current study suggested that child age did not moderate the relationship between parenting practices and children's noncompliance behaviours. However, these results should be interpreted cautiously given the long-recognized difficulties in detecting significant interaction effects in multiple regression analyses (Cronbach, 1987; Shieh, 2009). It is possible that the sample size and lack of variability in predictor scores may have been inadequate to detect an interaction effect in the current study. Previous research demonstrates that insufficient sample sizes and range restriction

of the predictor variables can significantly decrease the power in moderated multiple regression analyses (Aguinis, 1995). Consequently, it is well established that researchers commonly fail to detect moderation effects in moderated multiple regression due to insufficient power. Future research using larger, representative samples is needed to determine if the non-significant moderation findings in the current study were due to insufficient power.

Implications of Findings

Overall, findings from the current study strongly suggest that the traditional conceptualization of bedtime resistance needs to be revisited. As the current study highlights, children display a multitude of behaviours when they fail to comply with parent directives or requests at bedtime. These behaviours can range from emotionally-regulated negotiation to temper tantrums. However, this spectrum of behaviours is traditionally viewed as a unitary construct. Researchers and clinicians have primarily focused on reducing these behaviours to a unitary category of "problematic" behaviours. The findings of the current study challenge this traditional view. In place of this unitary conceptualization, it seems necessary to acknowledge the qualitative differences between these behaviours.

A differentiated approach lends itself to a framework that recognizes that some forms of bedtime behaviours may serve a developmental purposes (i.e., negotiation), whereas others may be a sign of atypical development (i.e., direct defiance). Identifying the developmental trajectory of these different forms of bedtime behaviours will allow clinicians and parents to distinguish between typical and atypical development (i.e., age appropriate changes in bedtime behaviours). Moreover, if bedtime behaviours serve different motivational purposes (e.g., asserting autonomy, seeking affection, articulating fear, or attempting to delay bedtime) then it may be pertinent to help parents identify these nuances. For example, teaching parents to distinguish between

problematic bedtime behaviours versus children's adaptive attempts to assert their autonomy may help parents select more effective responses to their children's behaviours. Finally, by acknowledging that these behaviours do not represent a unitary construct and that they may serve a myriad of motivational purposes, we must consider whether or not the term bedtime resistance adequately captures this constellation of behaviours. Perhaps it is more appropriate to use a term such as bedtime behaviours. This latter term is more representative of the diversity of behaviours and acknowledges that these behaviours may manifest from an array of motivational underpinnings that extend beyond resistance.

Study Limitations and Directions for Future Research

Several limitations related to the sample and methodology need to be considered when interpreting the results of the current study. First, the results are limited by both the size and characteristics of the sample. Specifically, the factor analyses in the current study were likely underpowered since the minimum recommendation of 150 participants for factor analysis was not met (Anderson & Gerbing, 1984). Therefore, the factor structure of the two newly created measures of both parenting behaviours at bedtime and bedtime resistance in early childhood should be interpreted cautiously. In addition to sample size, the current sample was somewhat homogenous and not representative of a diverse sample population which limits the interpretation and generalizability of the results. Specifically, the caregivers in the current study were highly educated (72.5% had a university degree), Caucasian (83.2%), married mothers (> 80%) with household incomes greater than $75, 000 (82.5%). Findings from previous research suggest that socioeconomic status (SES) is associated with parenting practices and values (Hoff, Laursen, & Tardif, 2002). Therefore, the homogeneity of the sample could be responsible for the limited variability in the needs-supportive parenting measures. Moreover, the lack of variability

in the bedtime parenting measure could possibly account for the non-significant moderation findings.

A further limitation with respect to the sample was the focus on bedtime behaviours in early childhood. Specifically, the age range of the current sample could have been too restrictive. Developmental research suggests that the influence of parenting on children's behaviours can be both immediate and delayed (e.g., Conway et al., 2017; Gámez-Guadix, Straus, Carrobles, Muñoz-Rivas, & Almendros, 2010). Therefore, the possibility exists that the influence of needs-supportive parenting on bedtime behaviours may not be entirely evident until middle childhood. Research suggests that committed compliance is a precursor to internalization (Kochanska et al., 1995) and that needs-satisfaction facilitates this process (Grolnick, 2009). In line with this reasoning, it would be interesting to consider if needs-supportive parenting at bedtime facilitates the internalization of family values and expectations within the context of bedtime. Specifically, researchers could examine if needs-fulfillment in a bedtime context during early childhood predicts internalization of bedtime behaviours and sleep hygiene practices in adolescents and young adults.

Second, there were several methodological limitations related to both the measures and research design employed in the current study. The present study relied on self-report measures of parent and child behaviours. The limitations of self-report measures are well documented in previous literature. For example, findings from Najman and colleagues (2001) suggest that an array of variables can influence how parents perceive their children's behaviour, such as gender-related expectations and caregiver mental health status. Consequently, the parent and child measures in the current study may have been biased and may have failed to accurately capture the behaviours of the participants in this study. For example, parental expectations and beliefs

may have influenced whether a parent perceived a child's responses as an explanation or an excuse. Alternatively, as discussed previously in this section, parents in the current study may have responded in a socially desirable manner. In addition, the child and parent measures were completed by the same individual; therefore, the findings in the current study could merely represent spurious relationships. Future research should consider utilizing more objective measures of children and parent behaviours, such as video-recordings (Teti et al., 2010), in-home observations (Crockenberg & Litman, 1990), or a multi-informant methods to address these limitations.

A cross-sectional design was used in the current study, which precludes the drawing of directional and causal inferences. Although the current research was approached from the premise that needs-supportive parenting influences children's bedtime behaviours, it is equally probable that children's bedtime behaviours influence how caregivers interact with their children at bedtime. Future studies could utilize a cross-lagged panel analysis research design to clarify the directionality of the relationship between needs-supportive parenting and children's bedtime behaviours over time. As well, this approach could explore the magnitude of effects both concurrently and longitudinally. An additional methodological approach would be the use of cluster analysis to identify typologies of bedtime behavioural responses. Based on a self-regulation and a developmental perspective, it would be expected that bedtime behavioural responses would cluster into distinct typologies. Exploring the profiles of these children could provide valuable insight into the factors related to the different typologies and the interplay between them, as well as the developmental trajectories and long-term outcomes associated with different bedtime behaviour profiles. This approach raises many questions, such as how might a child with high levels of negotiation accompanied by high levels of other forms of

noncompliance differ from a similar child who has low levels of negotiation?

Finally, there are two additional limitations regarding how need-supportive parenting was operationalized in the current study. First, the young age of the children restricted how perceived needs-supportive parenting was measured in the current study. Measures of needs-supportive parenting were completed by caregivers instead of by children. This approach may be short-sighted. Deci and Ryan (1985) caution that it is the individual's *perception* of their environment as needs-supportive that is associated with the benefits of needs fulfillment, not the social context itself. Therefore, the possibility exists that: (a) a needs-supportive social context from a parent's perceptive may not necessarily be perceived as needs-supportive from the child's perspective, and (b) a non needs-supportive environment could be perceived as needs-supportive (Deci & Ryan, 1985; Patrick, Hennessy, McSpadden, & Oh, 2013). Future research considering the child's perception is recommended. Second, the current study was further limited by the use of a single-factor model of needs-supportive parenting. The possibility exists that the salience of autonomy-support, structure, and involvement may vary during different periods of development (Grolnick & Raftery-Helmer, 2013). This possibility was not explored in the current study. Future research adopting a three-factor model could provide valuable insight into the salience of each parenting dimension at multiple age points and their differential influence on bedtime behaviours.

Conclusion

The present study adopted a unique approach to examine the relationship between parenting practices and bedtime noncompliance. In particular, bedtime noncompliance was examined from a developmental perspective and informed by SDT research. The results of this study emphasize the need to further explore the conceptualization and developmental trajectory

of bedtime behaviours. Specifically, the results showed that less sophisticated forms of bedtime noncompliance (i.e., direct defiance, simple refusal, and passive noncompliance) tend to decrease with age, whereas more sophisticated forms of bedtime noncompliance tend to increase. Moreover, with the exception of negotiation, the findings provide preliminary support for our understanding of how parenting practices that thwart children's innate psychological needs may contribute to the manifestation of less adaptive forms of bedtime noncompliance. This area is ripe for investigation and a longitudinal approach could clarify the directionality of the relationship between parenting practices and bedtime behaviours, as well as the long-term implications of different parenting practices at bedtime.

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Appendix A

Demographic Questionnaire

Instructions: Please fill out following information about yourself and your child that is participating in this study.

1. Your child's birthdate *MM/DD/YYYY (EXAMPLE: 02/28/2012):*

_____ / _____ / _____

2. Your child's age:

Years: _____

Months: _____

3. Your child's gender *(please check one)***:**

____ Boy

____ Girl

____ Other, please specify _____

4. Your relationship to child *(please select one)***:**

____ Father

____ Mother

____ Grandfather

____ Grandmother

____ Other, please specify the relationship _____

5. Your marital status: *(please check one)*

____ Married

____ Living common-law

____ Separated

____ Divorced

____ Widowed

____ Single

____ Other, please specify _____

6. Your age *(years)***:**

_____

7. Have you ever been diagnosed with depression or another mental health condition?

____ Yes, please specify _____

____ No

8. What is the highest level of education you have completed? (*please only check highest level completed*):

____ Less than high school degree

____ High school degree

____ Some college/university

____ Bachelor's degree

____ Graduate/Post-Graduate degree

____ Other, please specify _____

9. Which category best describes your current employment status? *(please check one)*:

____ Full-time employment

____ Part-time employment

____ Stay-at-home parent

____ Full-time student

____ Part-time student

____ Other, please specify _____

10. Which categories best describe your ethnicity? *(please check all that apply)*:

____ Arab

____ Asian

____ Black *(e.g., African, Jamaican)*

____ Caucasian

____ Indigenous *(e.g., First Nations, Métis, Inuit)*

____ Latin American/Hispanic

____ Prefer not to answer

____ Other, please specify _____

11. What is the primary language spoken in your household? *(please select one)*

____ English

____ French

____ Other, please specify _____

12. How many adults, including you, live in your house?

_____

13. What is your best estimate of your gross annual <u>household</u> income before taxes and deductions? *(please check one):*

____ less than $25,000
____ $25,000-$49,999
____ $50,000-$74,999
____ $75,000-$99,999
____ $100,000-$124,999
____ $125,000 or more

Appendix B

Children's Behaviour Questionnaire – Very Short Form Version l (CBQ-VSF)

Source: Putnam and Rothbart (2006)

Instructions: On the next pages you will see a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are of course no "correct" ways of reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Please read each statement and decide whether it is a "true" or "untrue" description of your child's reaction within the past six months. Use the following scale to indicate how well a statement describes your child:

Extremely untrue of your child

Quite untrue of your child

Slightly untrue of your child

Neither true nor false of your child

Slightly true of your child

Quite true of your child

Extremely true of your child

If you cannot answer one of the items because you have never seen the child in that situation, for example, if the statement is about the child's reaction to your singing and you have never sung to your child, then circle NA (not applicable).

Please be sure to select ONE box for EVERY item.

Please complete question 1-10:

Reminder: Please indicate whether each statement is a “true” or “untrue” description of your child’s reaction within the past six months.

	Extremely Untrue	Quite Untrue	Slightly Untrue	Neither True or Untrue	Slightly True	Quite True	Extremely True	N/A
1. Seems always in a big hurry to get from one place to another.	☐	☐	☐	☐	☐	☐	☐	☐
2. Gets quite frustrated when prevented from doing something they want to do.	☐	☐	☐	☐	☐	☐	☐	☐
3. When drawing or coloring in a book, shows strong concentration.	☐	☐	☐	☐	☐	☐	☐	☐
4. Likes going down high slides or other adventurous activities.	☐	☐	☐	☐	☐	☐	☐	☐
5. Is quite upset by a little cut or bruise.	☐	☐	☐	☐	☐	☐	☐	☐
6. Prepares for trips and outings by planning things they will need.	☐	☐	☐	☐	☐	☐	☐	☐
7. Often rushes into new situations.	☐	☐	☐	☐	☐	☐	☐	☐
8. Tends to become sad if the family's plans don't work out.	☐	☐	☐	☐	☐	☐	☐	☐
9. Likes being sung to.	☐	☐	☐	☐	☐	☐	☐	☐
10. Seems to be at ease with almost any person.	☐	☐	☐	☐	☐	☐	☐	☐

Please complete question 11-20:

Reminder: Please indicate whether each statement is a “true” or “untrue” description of your child’s reaction within the past six months.

	Extremely Untrue	Quite Untrue	Slightly Untrue	Neither True or Untrue	Slightly True	Quite True	Extremely True	N/A
11. Is afraid of burglars or the "boogie man."	☐	☐	☐	☐	☐	☐	☐	☐
12. Notices it when parents are wearing new clothing.	☐	☐	☐	☐	☐	☐	☐	☐
13. Prefers quiet activities to active games.	☐	☐	☐	☐	☐	☐	☐	☐
14. When angry about something, they tend to stay upset for ten minutes or longer.	☐	☐	☐	☐	☐	☐	☐	☐
15. When building or putting something together, becomes very involved in what they are doing, and works for long periods.	☐	☐	☐	☐	☐	☐	☐	☐
16. Likes to go high and fast when pushed on a swing.	☐	☐	☐	☐	☐	☐	☐	☐
17. Seems to feel depressed when unable to accomplish some task.	☐	☐	☐	☐	☐	☐	☐	☐
18. Is good at following instructions.	☐	☐	☐	☐	☐	☐	☐	☐
19. Takes a long time in approaching new situations.	☐	☐	☐	☐	☐	☐	☐	☐
20. Hardly ever complains when ill with a cold.	☐	☐	☐	☐	☐	☐	☐	☐

Please complete question 21-30:

Reminder: Please indicate whether each statement is a “true” or “untrue” description of your child’s reaction within the past six months.

	Extremely Untrue	Quite Untrue	Slightly Untrue	Neither True or Untrue	Slightly True	Quite True	Extremely True	N/A
21. Likes the sound of words, such as nursery rhymes.	☐	☐	☐	☐	☐	☐	☐	☐
22. Is sometimes shy even around people they have known a long time.	☐	☐	☐	☐	☐	☐	☐	☐
23. Is very difficult to soothe when they have become upset.	☐	☐	☐	☐	☐	☐	☐	☐
24. Is quickly aware of some new item in the living room.	☐	☐	☐	☐	☐	☐	☐	☐
25. Is full of energy, even in the evening.	☐	☐	☐	☐	☐	☐	☐	☐
26. Is not afraid of the dark.	☐	☐	☐	☐	☐	☐	☐	☐
27. Sometimes becomes absorbed in a picture book and looks at it for a long time.	☐	☐	☐	☐	☐	☐	☐	☐
28. Likes rough and rowdy games.	☐	☐	☐	☐	☐	☐	☐	☐
29. Is not very upset at minor cuts or bruises.	☐	☐	☐	☐	☐	☐	☐	☐
30. Approaches places they have been told are dangerous slowly and cautiously.	☐	☐	☐	☐	☐	☐	☐	☐

Please complete question 31-36:

Reminder: Please indicate whether each statement is a “true” or “untrue” description of your child’s reaction within the past six months.

	Extremely Untrue	Quite Untrue	Slightly Untrue	Neither True or Untrue	Slightly True	Quite True	Extremely True	N/A
31. Is slow and unhurried in deciding what to do next.	☐	☐	☐	☐	☐	☐	☐	☐
32.Gets angry when they can't find something they want to play with.	☐	☐	☐	☐	☐	☐	☐	☐
33. Enjoys gentle rhythmic activities such as rocking or swaying.	☐	☐	☐	☐	☐	☐	☐	☐
34. Sometimes turns away shyly from new acquaintances.	☐	☐	☐	☐	☐	☐	☐	☐
35. Becomes upset when loved relatives or friends are getting ready to leave following a visit.	☐	☐	☐	☐	☐	☐	☐	☐
36. Comments when a parent has changed their appearance.	☐	☐	☐	☐	☐	☐	☐	☐

Appendix C

Perceived Stress Scale (PSS)

Source: Cohen, Kamarck, and Mermelstein (1983); Cohen and Williamson (1988)

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. Please indicate how often you felt or thought a certain way using the following scale:

Never	Almost Never	Sometimes	Fairly Often	Very Often

	Never	Almost Never	Sometimes	Fairly Often	Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly?	☐	☐	☐	☐	☐
2. In the last month, how often have you felt that you were unable to control the important things in your life?	☐	☐	☐	☐	☐
3. In the last month, how often have you felt nervous and "stressed"?	☐	☐	☐	☐	☐
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	☐	☐	☐	☐	☐
5. In the last month, how often have you felt that things were going your way?	☐	☐	☐	☐	☐
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	☐	☐	☐	☐	☐
7. In the last month, how often have you been able to control irritations in your life?	☐	☐	☐	☐	☐
8. In the last month, how often have you felt that you were on top of things?	☐	☐	☐	☐	☐
9. In the last month, how often have you been angered because of things that were outside of your control?	☐	☐	☐	☐	☐
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	☐	☐	☐	☐	☐

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Appendix D

Revised - Parents as a Social Context Questionnaire (R-PSCQ)

Source: Egeli (2015); Skinner, Johnson, and Snyder (2005); Skinner, Wellborn, and Regan (1986)

Instructions: For the following questions, please think about your relationship and interactions with your child. Consider your relationship and interactions on a typical day. Then, please indicate how true each statement is for you in relation to your child using the scale below:

Very Untrue	**Untrue**	**Somewhat Untrue**	**Neutral**	**Somewhat True**	**True**	**Very Untrue**

There are 33 questions in this General Parenting Questionnaire.

Reminder: Please indicate how true each statement is for you with respect to your relationship and interactions with your child on a typical day.

		Very Untrue	Untrue	Somewhat Untrue	Neutral	Somewhat True	True	Very True
1.	I know a lot about what goes on for my child.	☐	☐	☐	☐	☐	☐	☐
2.	I really know how my child feels about things.	☐	☐	☐	☐	☐	☐	☐
3.	I do special things with my child.	☐	☐	☐	☐	☐	☐	☐
4.	I set aside time to talk to my child about what is important to him/her.	☐	☐	☐	☐	☐	☐	☐
5.	I can always find time for my child.	☐	☐	☐	☐	☐	☐	☐
6.	I feel good about the relationship I have with my child.	☐	☐	☐	☐	☐	☐	☐
7.	I let my child know I love him/her.	☐	☐	☐	☐	☐	☐	☐
8.	I don’t understand my child very well.	☐	☐	☐	☐	☐	☐	☐
9.	Sometimes my child is hard to like.	☐	☐	☐	☐	☐	☐	☐
10.	At times, the demands that my child makes feel like a burden.	☐	☐	☐	☐	☐	☐	☐
11.	My child needs more than I have time to give him/her.	☐	☐	☐	☐	☐	☐	☐
12.	Sometimes, I feel like I can’t be there for my child when he/she needs me.	☐	☐	☐	☐	☐	☐	☐
13.	I make it clear what will happen if my child does not follow our rules.	☐	☐	☐	☐	☐	☐	☐
14.	I make it clear to my child what I expect from him/her.	☐	☐	☐	☐	☐	☐	☐
15.	When I punish my child, I always explain why.	☐	☐	☐	☐	☐	☐	☐
16.	When I tell my child I’ll do something, I do it.	☐	☐	☐	☐	☐	☐	☐
17.	If my child has a problem, I help him/her figure out what to do about it.	☐	☐	☐	☐	☐	☐	☐

Reminder: Please indicate how true each statement is for you with respect to your relationship and interactions with your child on a typical day.

		Very Untrue	Untrue	Somewhat Untrue	Neutral	Somewhat True	True	Very True
18.	I expect my child to follow our family rules.	☐	☐	☐	☐	☐	☐	☐
19.	I let my child get away with things I really shouldn't allow.	☐	☐	☐	☐	☐	☐	☐
20.	When my child gets in trouble, my reaction is not very predictable.	☐	☐	☐	☐	☐	☐	☐
21.	My child doesn't seem to know what I expect from him/her.	☐	☐	☐	☐	☐	☐	☐
22.	I change the rules a lot at home.	☐	☐	☐	☐	☐	☐	☐
23.	I can get mad at my child without warning.	☐	☐	☐	☐	☐	☐	☐
24.	I encourage my child to express his/her feelings even when they're hard to hear.	☐	☐	☐	☐	☐	☐	☐
25.	I encourage my child to express his/her opinions even when I don't agree with them.	☐	☐	☐	☐	☐	☐	☐
26.	I trust my child.	☐	☐	☐	☐	☐	☐	☐
27.	I encourage my child to be true to her/himself.	☐	☐	☐	☐	☐	☐	☐
28.	I expect my child to say what he/she really thinks.	☐	☐	☐	☐	☐	☐	☐
29.	My child fights me at every turn.	☐	☐	☐	☐	☐	☐	☐
30.	To get my child to do something, I have to yell at him/her.	☐	☐	☐	☐	☐	☐	☐
31.	I can't afford to let my child decide too many things on his or her own.	☐	☐	☐	☐	☐	☐	☐
32.	I sometimes feel that I have to push my child to do things.	☐	☐	☐	☐	☐	☐	☐
33.	I find myself getting into power struggles with my child.	☐	☐	☐	☐	☐	☐	☐

Appendix E

Perceived Needs-Supportive Parenting at Bedtime Questionnaire (BNSP)

Instructions: Think about your typical interactions with your child while they get ready for bed. Specifically, think about your interactions with this child during the 15-60 minute time period before your child falls asleep. This period of time typically includes a series of events that prepare your child for bedtime, such as eating a bedtime snack, having a cuddle, reading a story, taking a bath, saying goodnight, watching TV, brushing teeth, listening to music, or putting on pyjamas. Bedtime routines can vary significantly from family to family and your routine may consist of only two or three activities or almost all of the activities listed above.

Then indicate to what extent each of the following 36 statements represent your interactions with your child during their bedtime routine on a typical evening. Please use the scale provided below:

Never	Almost Never	Occasionally	Half the Time	Often	Almost Always	Always

Reminder: Bedtime preparation can be a stressful time for many families, so remember there are no right or wrong answers to any of these statements. Please be realistic and respond in a manner that is most reflective of your own personal experience during a typical evening with your child.

There are 36 questions in this Bedtime Parenting Questionnaire.

Reminder: Please indicate to what extent each of the following statements represent your interactions with your child during their bedtime routine on a typical evening.

	Very Untrue	Untrue	Somewhat Untrue	Neutral	Somewhat True	True	Very True
1. I always propose different ways to perform bedtime activities, so my child can pick which way works best for them.	☐	☐	☐	☐	☐	☐	☐
2. I reduce distractions for my child when they are getting ready for bed. (For example: turn off the TV or make sure toys are out of sight.)	☐	☐	☐	☐	☐	☐	☐
3. I am always available when my child needs help getting ready for bed.	☐	☐	☐	☐	☐	☐	☐
4. At bedtime, I make an effort to see things from my child's perspective.	☐	☐	☐	☐	☐	☐	☐
5. If my child receives a consequence at bedtime, I explain why so my child understands my rationale.	☐	☐	☐	☐	☐	☐	☐
6. I offer my child opportunities to make suggestions during their bedtime routine.	☐	☐	☐	☐	☐	☐	☐
7. I follow through when I tell my child I'm going to do something at bedtime.	☐	☐	☐	☐	☐	☐	☐
8. Within limits, I let my child do things their own way while getting ready for bed.	☐	☐	☐	☐	☐	☐	☐
9. I take time to figure out why my child is struggling if they are having a hard time at bedtime.	☐	☐	☐	☐	☐	☐	☐
10. I talk with my child about what I expect of them at bedtime and why.	☐	☐	☐	☐	☐	☐	☐

Reminder: Please indicate to what extent each of the following statements represent your interactions with your child during their bedtime routine on a typical evening.

11. I encourage my child to talk with me about their feelings if they become upset at bedtime.	☐	☐	☐	☐	☐	☐	☐
12. If my child doesn't want to do something while getting ready for bed, I give them the opportunity to explain why.	☐	☐	☐	☐	☐	☐	☐
13. I find it difficult to show my child affection when they are not doing what I've asked them to do during their bedtime routine.	☐	☐	☐	☐	☐	☐	☐
14. I am more inconsistent with my child at bedtime compared to other times of the day.	☐	☐	☐	☐	☐	☐	☐
15. I offer my child the opportunity to do some bedtime activities by themselves before offering to help.	☐	☐	☐	☐	☐	☐	☐
16. When my child is being disciplined for something they have done at bedtime, I clearly explain why.	☐	☐	☐	☐	☐	☐	☐
17. I wish someone else would get my child ready for bed so I didn't have to do it myself.	☐	☐	☐	☐	☐	☐	☐
18. While getting ready for bed, I offer my child a lot of choices and encourage them to choose which option they prefer.	☐	☐	☐	☐	☐	☐	☐
19. I make time to help my child with their bedtime routine even if I am really busy or tired.	☐	☐	☐	☐	☐	☐	☐

Reminder: Please indicate to what extent each of the following statements represent your interactions with your child during their bedtime routine on a typical evening.

20. I use rewards to help motivate my child to do what I want at bedtime. (For example: I might say, "If you do what I ask then you'll be able to _____")	☐	☐	☐	☐	☐	☐	☐
21. I get frustrated while interacting with my child during their bedtime routine, especially when they aren't listening.	☐	☐	☐	☐	☐	☐	☐
22. I tell my child that I'll get angry or disappointed if they don't do what I ask at bedtime.	☐	☐	☐	☐	☐	☐	☐
23. When I ask my child to do something at bedtime, I don't explain why it is important. (For example: I might say, "Because I told you to")	☐	☐	☐	☐	☐	☐	☐
24. I try to be clear with my child about what I expect of them at bedtime.	☐	☐	☐	☐	☐	☐	☐
25. I am genuinely interested by what my child says while getting ready for bed.	☐	☐	☐	☐	☐	☐	☐
26. I adjust the environment of the house to prepare my child for bedtime. (For example: turn off the TV, turn on soothing music, turn down lights, or talk in a quieter voice.)	☐	☐	☐	☐	☐	☐	☐
27. I supervise every step of my child's bedtime routine.	☐	☐	☐	☐	☐	☐	☐
28. I show my child affection at bedtime, even if I'm frustrated or mad because they haven't been listening. (For example: I tell my child I love them or give them a cuddle.)	☐	☐	☐	☐	☐	☐	☐

Reminder: Please indicate to what extent each of the following statements represent your interactions with your child during their bedtime routine on a typical evening.

29. I react in a predictable way when my child does something I don't like at bedtime.	☐	☐	☐	☐	☐	☐	☐
30. I know what bedtime preparation activity is most difficult for my child. (For example: brushing teeth, turning off TV, or staying on task.)	☐	☐	☐	☐	☐	☐	☐
31. I establish a predictable bedtime routine for my child. (For example: the same bedtime activities are typically performed in the same order every night)	☐	☐	☐	☐	☐	☐	☐
32. I threaten to remove privileges or things my child likes if they don't do what I ask them to do at bedtime because listening to instructions is important. (For example: I might say, "If you don't do what I say you'll lose _____")	☐	☐	☐	☐	☐	☐	☐
33. I enjoy spending time with my child while they get ready for bed.	☐	☐	☐	☐	☐	☐	☐
34. I look forward to helping my child get ready for bed.	☐	☐	☐	☐	☐	☐	☐
35. I let my child get away with things at bedtime that I normally would not allow.	☐	☐	☐	☐	☐	☐	☐
36. I encourage my child to take responsibility for aspects of their bedtime routine. (For example: putting on their pyjamas, cleaning up their toys, or choosing a bedtime story)	☐	☐	☐	☐	☐	☐	☐

Appendix F

Children's Sleep-Wake Scale – Adapted (CSWS)

Source: LeBourgeois and Harsh (2016)

Instructions: Please think about how your child usually behaves in the evening when it is time to go to bed and go to sleep. Using the scale below, indicate how often the following behaviours usually occurred during the past month.

Never	**Almost Never**	**Occasionally**	**Half the Time**	**Often**	**Always**
(Did not happen)	*(Less than 1 night per week)*	*(1-2 nights per week)*	*(3-4 nights per week)*	*(5-6 nights per week)*	*(7 nights per week)*

PART I: When it was **time to go to bed**, my child…

	Never *(Did not happen)*	**Almost Never** *(< 1 night per week)*	**Occasionally** *(1-2 nights per week)*	**Half the Time** *(3-4 nights per week)*	**Often** *(5-6 nights per week)*	**Always** *(7 nights per week)*
1. … willingly went straight to bed at bedtime	☐	☐	☐	☐	☐	☐
2. … made repeated requests *(For example: asked for another drink, hug, or story)*	☐	☐	☐	☐	☐	☐
3. … wanted to stay up and do other things *(For example: read, play, or watch TV)*	☐	☐	☐	☐	☐	☐
4. … was ready to go to bed at bedtime	☐	☐	☐	☐	☐	☐
5. … "put off" or delayed going to bed	☐	☐	☐	☐	☐	☐
6. … reluctantly went to bed	☐	☐	☐	☐	☐	☐

PART II: When it was **time to go to sleep** (lights-out), my child...

	Never *(Did not happen)*	**Almost Never** *(< 1 night per week)*	**Occasionally** *(1-2 nights per week)*	**Half the Time** *(3-4 nights per week)*	**Often** *(5-6 nights per week)*	**Always** *(7 nights per week)*
1. … was quiet and calm	☐	☐	☐	☐	☐	☐
2. … had trouble settling down	☐	☐	☐	☐	☐	☐
3. … had difficultly falling asleep	☐	☐	☐	☐	☐	☐
4. … needed help getting to sleep	☐	☐	☐	☐	☐	☐
5. … fell asleep quickly after "lights-out"	☐	☐	☐	☐	☐	☐
6. … had trouble staying in bed after "lights-out"	☐	☐	☐	☐	☐	☐

Appendix G

Sleep and Bedtime Routines Questionnaire

1. What time does your child typically **start getting ready for bed**?
   Example: 7:00 PM

   ____:____

2. What time does your child typically **go to bed** on **weekday** nights? *(i.e., time lights are turned out and say goodnight)*
   Example: 8:00 PM

   ____:____

3. What time does your child typically **go to bed** on **weekend/vacation** nights? *(i.e., time lights are turned out and say goodnight)*
   Example: 7:00 PM

   ____:____

4. What time does your child typically **wake-up** on **weekday** mornings?
   Example: 8:00 AM

   ____:____

5. What time does your child typically **wake-up** on **weekend/vacation** mornings?
   Example: 8:00 AM

   ____:____

6. How important is it to you that your child has a bedtime routine?

   a) Extremely important
   b) Very important
   c) Moderately important
   d) Somewhat important
   e) Slightly important
   f) Not at all important

7. Please answer the following questions about your child's bedtime routine using the scale provided:

		Never *(Did not happen)*	**Almost Never** *(< 1 night per week)*	**Occasionally** *(1-2 nights/ week)*	**Half the Time** *(3-4 night/ week)*	**Often** *(5-6 nights/ week)*	**Always** *(7 night/ week)*
a.	In a typical 7-day week, how often does your child perform the **same activities** in the hour before going to bed? (*For example: bathe, brush teeth, read a story, cuddle*)	☐	☐	☐	☐	☐	☐
b.	In a typical 7-day week, how often does your child perform activities **in the same order** before going to bed? (*For example: eat snack, brush teeth, read a story, cuddle, lights out*)	☐	☐	☐	☐	☐	☐
c.	In a typical 7-day week, how often does your child go to bed **at the same time**? (*within 10 minutes*)	☐	☐	☐	☐	☐	☐
d.	In a typical 7-day week, how often does your child get put to bed **by the same person**?	☐	☐	☐	☐	☐	☐

8. Using the scale provided, please indicate how difficult your child finds each of the following bedtime activities:

		Very Difficult	**Difficult**	**Neutral**	**Easy**	**Very Easy**	**N/A**
a.	Starting bedtime routine *(For example: transitioning from evening activities to bedtime routine)*	☐	☐	☐	☐	☐	☐
b.	Completing bedtime activities *(For example: brushing teeth, putting on PJ's)*	☐	☐	☐	☐	☐	☐
c.	Going to bed	☐	☐	☐	☐	☐	☐
d.	Going to sleep	☐	☐	☐	☐	☐	☐

Appendix H

Bedtime Behavioural Responses Questionnaire - Part I

Instructions: At bedtime, caregivers ask their children to do different things. For example, a caregiver might say "It's time to brush your teeth" or "Please turn out the light." Children sometimes respond by doing what their caregivers ask at bedtime. Think about how your child typically responded when they **DID what you asked them to do at bedtime during the past month.**

Using the following scale, please indicate on average how often your child typically engaged in each type of response listed below during the past month.

Never	Almost Never	Occasionally	Half the Time	Often	Almost Always	Always

When I asked my child to do something at bedtime, such as saying "It's time to brush your teeth,"...

	Never	Almost Never	Occasionally	Half the Time	Often	Almost Always	Always
1. ... my child **DID** what I asked without complaining	☐	☐	☐	☐	☐	☐	☐
2. ... but needed help to stay on task	☐	☐	☐	☐	☐	☐	☐
3. ... my child **DID** what I asked even when I was in a different room	☐	☐	☐	☐	☐	☐	☐
4. ... my child **DID** what I asked without a negative attitude	☐	☐	☐	☐	☐	☐	☐
5. ... my child **DID** what I asked but needed reminders	☐	☐	☐	☐	☐	☐	☐
6. ... my child **DID** what I asked with protest	☐	☐	☐	☐	☐	☐	☐
7. ... my child **DID** what I asked and appeared eager and happy	☐	☐	☐	☐	☐	☐	☐
8. ... my child **DID** what I asked but didn't do it properly	☐	☐	☐	☐	☐	☐	☐
9. ... my child **DID** what I asked but appeared frustrated or upset	☐	☐	☐	☐	☐	☐	☐
10. ... my child **DID** what I asked only if I was supervising them	☐	☐	☐	☐	☐	☐	☐

Bedtime Behavioural Responses Questionnaire - Part II

Instructions: Other times children don't do what their caregivers ask at bedtime. Think about how your child typically responded when they **DIDN'T DO what you asked them to do at bedtime during the past month.**

Using the following scale, please indicate on average how often your child typically engaged in each type of response listed below during the past month.

(1) Never	(2) Almost Never	(3) Occasionally	(4) Half the Time	(5) Often	(6) Almost Always	(7) Always

When I asked my child to do something at bedtime, such as saying "It's time to brush your teeth," ...

		Never	Almost Never	Occasionally	Half the Time	Often	Almost Always	Always
1.	... my child **DIDN'T DO** what I asked and explained why they didn't do what was asked	☐	☐	☐	☐	☐	☐	☐
2.	... my child **DIDN'T DO** what I asked and tried to break things	☐	☐	☐	☐	☐	☐	☐
3.	... my child **DIDN'T DO** what I asked and lied to avoid doing what I asked	☐	☐	☐	☐	☐	☐	☐
4.	... my child **DIDN'T DO** what I asked and said "No" or "I don't want to" in a neutral tone of voice	☐	☐	☐	☐	☐	☐	☐
5.	... my child **DIDN'T DO** what I asked and seemed sad	☐	☐	☐	☐	☐	☐	☐
6.	... my child **DIDN'T DO** what I asked and asked me to explain my request (i.e., "Why?")	☐	☐	☐	☐	☐	☐	☐
7.	... my child **DIDN'T DO** what I asked and acted like they didn't hear me	☐	☐	☐	☐	☐	☐	☐
8.	... my child **DIDN'T DO** what I asked and threatened to hit me or someone else	☐	☐	☐	☐	☐	☐	☐
9.	... my child **DIDN'T DO** what I asked and asked questions to clarify my request/expectations	☐	☐	☐	☐	☐	☐	☐
10.	... my child **DIDN'T DO** what I asked and seemed frustrated	☐	☐	☐	☐	☐	☐	☐

Reminder: Please select NEVER if you cannot answer one of the items because you have never seen your child respond in that particular way or you feel the reaction is not applicable for your child.

When I asked my child to do something at bedtime, such as saying "It's time to brush your teeth," ...

	Never	Almost Never	Occasionally	Half the Time	Often	Almost Always	Always
11. ... my child **DIDN'T DO** what I asked and physically attacked me or someone else (e.g., hit, kicked, or bit)	☐	☐	☐	☐	☐	☐	☐
12. ... my child **DIDN'T DO** what I asked and whined or complained	☐	☐	☐	☐	☐	☐	☐
13. ... my child **DIDN'T DO** what I asked and made poor excuses for why they didn't want to do what I asked	☐	☐	☐	☐	☐	☐	☐
14. ... my child **DIDN'T DO** what I asked and tried to negotiate with me	☐	☐	☐	☐	☐	☐	☐
15. ... my child **DIDN'T DO** what I asked and called me names	☐	☐	☐	☐	☐	☐	☐
16. ... my child **DIDN'T DO** what I asked and tried to compromise	☐	☐	☐	☐	☐	☐	☐
17. ... my child **DIDN'T DO** what I asked and yelled at me	☐	☐	☐	☐	☐	☐	☐
18. ... my child **DIDN'T DO** what I asked and threw things	☐	☐	☐	☐	☐	☐	☐
19. ... my child **DIDN'T DO** what I asked and said they didn't want to do what I asked without giving an explanation	☐	☐	☐	☐	☐	☐	☐
20. ... my child **DIDN'T DO** what I asked and threw a temper tantrum	☐	☐	☐	☐	☐	☐	☐
21. ... gave a reasonable explanation for why they didn't want to do what I asked	☐	☐	☐	☐	☐	☐	☐
22. ... my child **DIDN'T DO** what I asked and spoke in an angry or frustrated voice	☐	☐	☐	☐	☐	☐	☐
23. ... tried to talk with me about why they didn't want to do what I asked	☐	☐	☐	☐	☐	☐	☐
24. ... my child **DIDN'T DO** what I asked and spoke in a calm voice	☐	☐	☐	☐	☐	☐	☐

Reminder: Please select NEVER if you cannot answer one of the items because you have never seen your child respond in that particular way or you feel the reaction is not applicable for your child.

When I asked my child to do something at bedtime, such as saying "It's time to brush your teeth," ...

	Never	Almost Never	Occasionally	Half the Time	Often	Almost Always	Always
25. ... my child **DIDN'T DO** what I asked and gave me an ultimatum, such as "You better let me or else..."	☐	☐	☐	☐	☐	☐	☐
26. ... my child **DIDN'T DO** what I asked and started doing something else to avoid doing what I asked	☐	☐	☐	☐	☐	☐	☐
27. ... my child **DIDN'T DO** what I asked and controlled their emotions	☐	☐	☐	☐	☐	☐	☐
28. ... my child **DIDN'T DO** what I asked and said they are not going to do what you asked in a neutral tone of voice	☐	☐	☐	☐	☐	☐	☐
29. ... my child **DIDN'T DO** what I asked and ignored me	☐	☐	☐	☐	☐	☐	☐
30. ... my child **DIDN'T DO** what I asked and seemed angry	☐	☐	☐	☐	☐	☐	☐