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Parenting at Midnight: Measuring Parents' Thoughts and Strategies to Help Young Children Sleep Through the Night

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Graduate Program in Psychology
A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of Philosophy
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PARENTING AT MIDNIGHT: MEASURING PARENTS' THOUGHTS AND
STRATEGIES TO HELP YOUNG CHILDREN SLEEP THROUGH THE NIGHT

(Spine title: Parenting at Midnight)

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by

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Graduate Program in Psychology

A thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

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**Parenting at Midnight: Measuring Parents' Thoughts and Strategies to Help
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Abstract

Throughout the night, brief periods of arousal are common and not necessarily indicative of problematic sleep. Awakening without an easy return to sleep (“night-waking”), however, can be problematic for parents and children alike. Approximately 30% of preschool-aged children wake at least once per night and require parental intervention (“help or assistance”). Although parents’ responses to children’s night-waking (i.e., parents’ night-waking strategies) can determine the course of night-waking over time, very little is known about night-waking strategy use among parents of preschool-aged children. The purpose of the present dissertation was to lay the foundation upon which a better understanding of the relationship of parenting to night-waking among preschool-aged children can be built.

In order to accomplish this goal, four measures were created: the Children’s Night-waking Behaviour Scale (CNBS), the Night-waking Vignettes Scale (NVS), the Parents’ Night-waking Thoughts and Affect Questionnaire (PNTQ), and the Night-waking Strategies Scale (NSS). Rigorous measurement development protocols were followed. These measures, as well as parent-report measures of children’s night-waking and questionnaires used to assess construct validity, were completed by a sample of 203 mothers ($M_{\text{age}} = 32.4$ years, $SD = 5.1$) of preschool-aged children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$). All four measures displayed adequate to good reliability and promising evidence of convergent validity was observed. Significant associations between the measures and children’s night-waking were also observed. Following measurement development and validation, a series of multiple regressions were conducted to explore associations among

the measures and identify areas for further research. In these regressions, mothers' night-waking strategies (as measured by the NSS) were significantly predicted by children's behaviour during night-wakings (as measured by the CNBS), mothers' agreement with night-waking strategies (as measured by the NVS), and mothers' thoughts and affect during night-waking episodes (as measured by the PNTQ). Clinical and research implications of these findings are discussed.

Keywords

Sleep, parenting, preschool-aged children, night-waking, questionnaire development

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Chapter 1: Measuring Parents' Thoughts and Strategies to Help Children Sleep through the Night

Throughout the night, brief periods of arousal are common and not necessarily indicative of problematic sleep. Awakenings without an easy return to sleep (“night-waking”), however, can be problematic for parents and children alike (Fehlings, Weiss, & Stephens, 2001; Hall, Zubrick, Silburn, Parsons, & Kurinczuk, 2007). Children and parents who do not obtain sufficient sleep may experience emotional, behavioural, and cognitive dysregulation (e.g., Bates, Viken, Alexander, Beyers, & Stockton, 2002; Stepanski, 2002), relational difficulties (Gellman & King, 2001; Morrell, 1999; Sadeh & Anders, 1993), and poorer health related quality of life (e.g., Hiscock, Canterford, Ukoumunne, & Wake, 2007; Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). Despite growing evidence that disrupted sleep has a wide range of negative outcomes for both children and adults, there is no consensus regarding what distinguishes night-waking that falls within normal experience from night-waking that is clinically significant. Proposed criteria consider children’s age (i.e., using different criteria for infants and preschoolers), the frequency (i.e., wakings per night, waking per week) and duration (minutes per waking, minutes per night, number of months waking has occurred) of night-waking episodes, parents’ perceptions of night-waking as problematic, and parents’ behaviour in response to children’s night-waking (for the purpose of this dissertation, “night-waking strategies”; e.g., taking the child into bed) (Gaylor, Burnham, Goodlin-Jones, & Anders, 2005; Higley & Dozier, 2009; Mindell et al., 2006; Richman, 1981).

Prevalence and Development of Night-waking

A recent survey of American parents (National Sleep Foundation [NSF], 2004) found that 31% of preschool-aged children wake once per night and require parental intervention (“help or assistance”), 3% wake twice per night, and 2% wake three times per night or more. The majority (80%) of parent-reported night-wakings last less than 15 minutes, 16% last 15 to 44 minutes, and 4% last 45 minutes or longer (NSF, 2004). Although children are capable of self-soothing (i.e., returning to sleep without parental assistance) by age 12 months (Anders, Halpern, & Hua, 1992; Pearl, Efron, & Stein, 2002), approximately 50% may not do so, instead requiring, signaling for, and receiving parental intervention to return to sleep (Goodlin-Jones, Burnham, Gaylor, & Anders, 2001). Infants who signal for, and receive, parental intervention following night-waking are more likely to experience night-waking at 3 years than infants who do not signal (Gaylor et al., 2005). Parental response appears to determine whether infant signaling, and thus night-waking, becomes entrenched and persists into the preschool (age 2 to 5 years) period (Zuckerman, Stevenson, & Bailey, 1997).

Longitudinal data describing the natural course of night-waking among young children in the population are limited. Studies that have been conducted are relatively inconsistent in their findings (e.g., Scher, Zuckerman, & Epstein, 2005). Between the first and fourth years of life (ages 0 to 3 years), night-waking tends to decrease, on average (i.e., at the group level), and waxes and wanes within individuals (Scher et al., 2005). Research also suggests, however, that sleep problems may be persistent in their course for a substantial portion of children (40-84%; Mindell, 1993; Sadeh & Anders, 1993) and that night-waking, when examined over a longer period (ages 0 to 10 years), peaks at age

4 (Jenni, Zinggeler, Iglowstein, Molinari, & Largo, 2005). In other words, it appears that the prevalence of night-waking up to age 10 years is greatest at age 4. A recent polysomnographic study - a methodology using recordings of sleep patterns, breathing, heart activity, and limb movements during sleep – (Montgomery-Downs, O'Brien, Gulliver & Gozal, 2006) suggests that children's sleep characteristics undergo considerable shifts during the preschool- to early school-age years (age 3 to 7 years).

Reasons for the fluctuations in the rates of night-waking reported in these studies may be methodological, due to variations within similar methods (e.g., in how parents were asked to report on night-waking in questionnaires) or across different methods [e.g., actigraphy (measurement of movement and activity through the night), video-observation, questionnaires]. In general, parents are considered to be reliable reporters of sleep behaviours with which they are directly involved, but may underestimate sleep events (e.g., non-sigaled awakenings) that do not come to their attention (Sadeh, 2008). Fluctuations in the rates of night-waking reported in these studies may also be a true reflection of children's and parents' development. For example, night-waking has been found to increase as children reach key milestones such as locomotion (e.g., Scher et al., 2005). Further, parent-child interactions during night-waking may become increasingly complex as children become more autonomous and their goals (e.g., wakefulness, physical comfort) diverge from those of their parents (e.g., independent sleep) (Teti, Kim, Mayer, & Counterline, 2010). The development of parents' expectations about night-waking, parents' interpretations of their children's night-waking over time (i.e., from infancy to the preschool period), the convergence and divergence of parent-child goals during waking episodes (i.e., feeding in infants vs. play in preschoolers), and the effects

these may have on parents' responses to night-waking have not been systematically examined. Parents' perceptions of night-waking as problematic may be linked to these developmental changes and milestones.

According to data from the National Sleep Foundation (2004), a substantial portion of parents respond to signaling during the preschool years: 42% of parents of preschool-aged children stay with their children until they fall asleep, 23% bring them to their (the parents') bed, and 7% sleep with their children in their children's beds. These behaviours are consistent with active comforting, a night-waking strategy that involves responding and acquiescing to children's requests for comfort at night. Of note, active comforting may interfere with the development of self-soothing as parental presence is required for children's return to sleep following an awakening (Fehlings et al., 2001). The NSF survey (NSF, 2004) also found that 66% of parents of preschool-aged children reported allowing their children to return to sleep on their own following a night-waking and 60% reported briefly checking on their children before their children fall back to sleep independently. These behaviours are consistent with limit-setting, a night-waking strategy that encourages the development of self-soothing by ignoring or not responding to children's signals at night. Intrusive behaviours (e.g., punishing, overinvolvement) have also been recently noted in the literature (Teti et al., 2010).

In general, it appears that parental intervention in response to night-waking increases between the first and second years of life (Scher et al., 2005), with parents increasing the frequency of limit-setting and social comforting (e.g., talking softly to the child) (Morrell & Cortina-Borja, 2002) and intrusive behaviours (Teti et al., 2010) during their children's toddler- and early preschool-years (i.e., 1 to 3 years). Active comforting

continues to be used regularly by parents during this period, although children whose parents who do not decrease its frequency tend to have sleep problems that are persistent in nature (Morrell & Cortina-Borja, 2002). When co-sleeping (a behaviour that is part of active comforting in which the parent and child share a bed for at least part of the night) occurs in Western cultures, and particularly within Caucasian middle-class families who are most commonly described in the research, co-sleeping is primarily reactive in nature (vs. an intentional behaviour rooted in parents' beliefs and preferences) (Ramos, Youngclarke, & Anderson, 2007). Co-sleeping peaks at age 4 concurrent with the peak of night-waking (Jenni et al., 2005).

Given the prevalence and impact of night-waking on children and families, it is surprising that so few studies have examined parents of preschool-aged children's use of limit-setting and active comforting in the population (i.e., outside of the context of night-waking interventions). Parents' engagement in, and determinants of, these strategies are the foci of this dissertation.

Models of Sleep in Young Children

Several models of sleep in infants have been published in the pediatric sleep literature. Two notable models of infant sleep have been developed by Sadeh and Anders (1993) and Morrell and Steele (2003). In these models, children's sleep problems are determined by parents' settling strategies (analogous to night-waking strategies, but occurring at any time parents require their children to sleep, rather than specifically following night-wakings), child-level factors, such as attachment and temperament, and parent-level factors, such as maternal depression. These models also recognize the role of parents' cognitions and affect in children's sleep. The models are transactional in nature

as both child-level and parent-level factors are seen to contribute to the nature and course of parent-child sleep-related interactions, and thus sleep quality, over time.

A small number of models of sleep problems among preschool-aged children also exist in the published literature. The two models with the most direct relevance to the present research have been presented by Johnson and McMahon (2008) and Touchette, Petit, Tremblay, and Montplaisir (2009). As with my own work, both models have been influenced by the existing infant sleep literature. The Johnson and McMahon model (2008) is a simple model predicting and supporting associations among parents' ability to cope with challenges and stressors ("parental hardiness"), parents' cognitions and affect related to children's sleep, parents' settling behaviours, and children's sleep. It does not consider broader contextual or child-level factors. The Touchette et al. (2009) model, however, does consider a wide range of contextual-level (e.g., family structure, socioeconomic status, ethnicity) and child-level factors (e.g., sex, temperament), but does not consider the influence of parents' cognitions and affect on their settling strategies. These factors have demonstrated associations with infant and child sleep (e.g., Johnson & McMahon, 2008; Morrell, 1999; Sadeh, Flint-Ofir, Tirosh, & Tikotsky, 2007) and are important components of pediatric sleep interventions (Tikotsky & Sadeh, 2010). Neither model is specific to night-waking – a gap that the Parenting at Midnight¹ research program was developed to address - and neither model considers the influence of children's night-waking behaviour on parents. The transactional nature of children's sleep

¹ Parenting at Midnight is a series of studies whose ultimate purpose is to develop and test a model of parenting and night-waking among preschool-aged children and their families. The dissertation at hand presents the first studies in this research project.

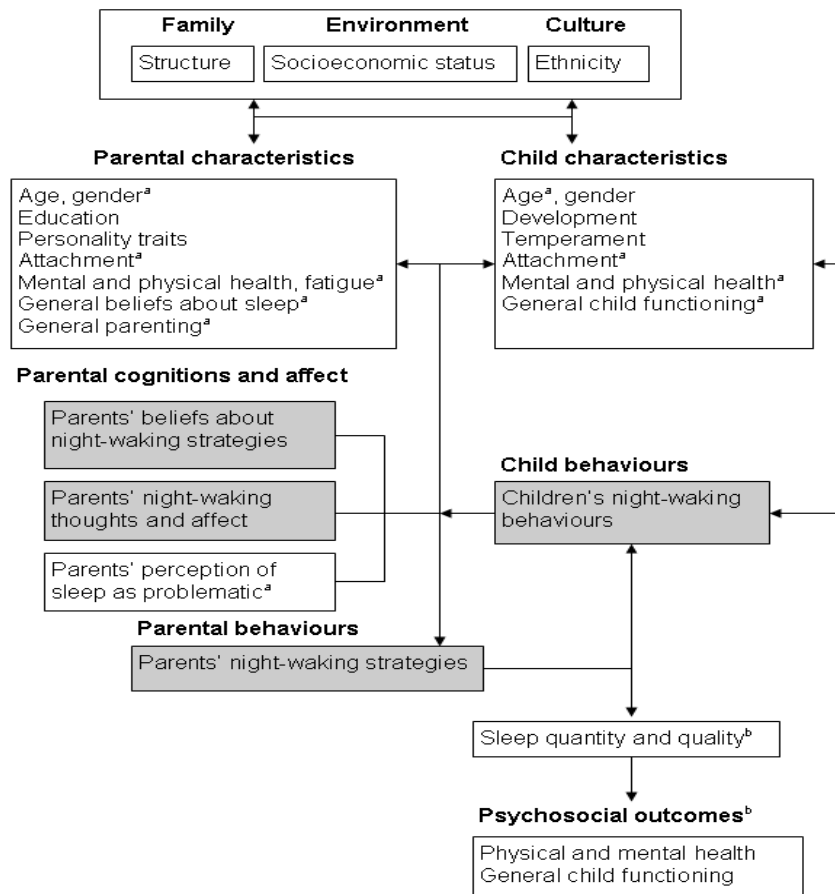
problems has been largely neglected in these models. General models of parenting clearly acknowledge the influence of children's behaviour on parents' behaviour (see Abidin, 1992; Belsky, 1984; Critchley & Sanson, 2006), recognizing that challenging child behaviours can "undermine parental functioning" (Belsky, 1984, p.86).

Dissertation Overview

This dissertation is concerned with parents' responses to children's awakenings that disrupt sleep occurring at night (as opposed to during naps), are not secondary to medical or health concerns (e.g., children who are ventilator dependent and require night-time caregiving; Meltzer & Mindell, 2006), come to parents' attention, and involve parental intervention ("night-waking"; Fehlings et al., 2001; Sadeh & Anders, 1993). It is not exclusively concerned with night-waking that is, or could be considered to be, clinically significant. Rather, it presents the first essential steps in developing a better understanding of the relationship of parents' responses to night-waking (parents' "night-waking strategies") to children's night-waking in the population. These essential steps are largely concerned with measurement development, as the instruments required to adequately test a model of parenting and night-waking among preschool-aged children are currently lacking.

Figure 1.1 presents the model of night-waking and parenting that has guided the development of the four instruments presented in this dissertation. This model was influenced by models of infant sleep (e.g., Morrell & Steele, 2003; Sadeh & Anders, 1993) and is related to models of sleep problems among young children by Johnson and McMahon (2008) and Touchette et al. (2009).

Figure 1.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the model that are not a central focus of the present dissertation are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present dissertation are indicated by a shaded text-box.



Like the infant models presented by Sadeh and Anders (1993) and Morrell and Steele (2003), the present model is transactional: it places primacy on the interaction of parent- and child-level variables and behaviours on the development and maintenance of night-waking. Like both the Touchette et al. (2009) model and the infant models, it considers a broad range of parent-level and child-level factors. Like both the Johnson and McMahon (2008) and the infant sleep models, it considers the influence of parents'

cognitions and affect on strategy use. In order to facilitate comparability across models and discussion in the field, the present model has been adapted from the Touchette et al. (2009) model to include prominent roles for children's behaviour and parents' cognitions and affect in influencing parents' night-waking strategies.

In Chapter 2, I present a manuscript describing the development and preliminary validation of the Children's Night-waking Behaviour Scale (CNBS; Appendix A), a parent-report measure of children's behaviour during night-waking episodes (e.g., settling back to sleep independently, calling out, getting out of bed, making requests of various types). I also present data on the association of children's night-waking behaviours to children's behaviour during the day, the frequency and duration of children's night-waking, and mothers' perceptions of night-waking as problematic. No comparable measure to the CNBS currently exists in the published literature. Within the context of the larger model proposed within this dissertation (Figure 1.1), children's night-waking behaviour is a central influence on parents' night-waking strategies. Children's night-waking behaviour acts as the activating event and outcome of parents' night-waking strategies.

In Chapter 3, I present a manuscript describing the development and preliminary validation of the Night-waking Vignettes Scale (NVS; Appendix A), a self-report measure of parents' agreement with four of the five night-waking strategies proposed in this dissertation²: limit-setting (resisting, ignoring, or not responding to children's night-

² The fifth strategy, routines, is not enacted during night-waking episodes, but rather at the beginning of the night. The NVS measures only those strategies which may be enacted during night-wakings.

waking behaviour), active comforting (acquiescing to children's requests for physical comfort in response to night-waking; e.g., cuddling, lying with child), reward (providing incentives for children's independent sleep), and punishment (providing negative consequences in response to children's night-waking; e.g., yelling, scolding, taking away a toy or privilege). I also present data on the relationship of parents' agreement with night-waking strategies to the frequency and duration of children's night-waking. In addition, in this chapter I present preliminary data exploring the effects of different types of requests made by children during night-waking episodes (e.g., requests for comfort, requests for social activity) on parents' agreement with each night-waking strategy. In the context of the larger model (Figure 1.1), parents' agreement with night-waking strategies is a proximal predictor of parents' night-waking strategies (Chapter 5). Parents' beliefs are thought to influence their night-waking strategy use directly, as well as their thoughts and feelings during night-waking interactions with their child (Chapter 4). The NVS is similar to the Infant Sleep Interpretation Vignettes Scale (Sadeh et al., 2007), designed to assess how parents interpret children's sleep problems in hypothetical situations and what parents believe should or can be done in response to the sleep problem depicted. The NVS diverges from the ISVIS in the following ways: a) it was designed specifically for use with parents of preschool-aged children (vs. parents of infants), b) it focuses exclusively on characteristics of children's behaviour during night-waking episodes (vs. behaviour that occurs during the day), and c) it measures agreement with four (vs. two: limit-setting and active comforting) strategies.

In Chapter 4, I present a manuscript describing the development and preliminary validation of the Parents' Night-waking Thoughts and Affect Questionnaire (PNTQ;

Appendix A), a measure of parents' thoughts and feelings when children wake at night. I also present data on the relation of PNTQ subscales to parents' agreement with night-waking strategies, parents' perceptions of their child's night-waking as problematic, and the frequency and duration of children's night-waking. In the context of the larger model (Figure 1.1), parents' thoughts and affect during night-waking episodes are the most proximal predictors of parents' night-waking strategies. They are influenced in part by parents' agreement with night-waking strategies, in part by children's night-waking behaviours, and in part by other parent-level factors such as general mental health and well-being. The PNTQ is comparable to the Maternal Cognitions about Infant Sleep Questionnaire (MCISQ; Morrell, 1999), a parent-report measure of parents' thoughts and affect in response to their infants' sleep. Among parents of infants, beliefs about limit-setting (e.g., "I should respond straightaway when my child wakes crying at night") and feelings of anger in the face of child demands (e.g., "If I try to resist my child's demands at night, then I think I might get very angry") are associated with self-reported use of active comforting strategies ($r = .57$; Morrell & Steele, 2003). Morrell (1999) has suggested that mothers may avoid limit-setting in order to avoid feelings of anger and helplessness. Similar parental cognitions have also been associated with night-waking among preschool-aged children (Johnson & McMahon, 2008). The psychometric properties of the MCISQ among parents of preschool-aged children, however, were relatively poor in comparison to the original measure (used with parents of infants). This suggests that a measure specific to this age group is required. The PNTQ diverges from the MCISQ in the following ways: a) it was designed for use with parents of preschool-

aged children (vs. infants) and b) it includes items that reflect positive (vs. negative) thoughts and affect.

In Chapter 5, I present a manuscript describing the development and preliminary validation of the Night-waking Strategies Scale (NSS; Appendix A), a measure of five night-waking strategies (limit-setting, active comforting, reward, punishment, and routines [sleep hygiene practices that prepare children for a relaxing and positive transition to sleep at night and may assist children with maintaining sleep and/or returning to sleep independently during the night]) used by parents of night-waking preschool-aged children. I also present data on the relation of NSS subscales to the frequency and duration of children's night-waking and to parents' perceptions of sleep as problematic. In the context of the larger model (Figure 1.1), parents' night-waking strategies are the outcome of the other factors. They are also the primary (most proximal) determinant of children's night-waking over time. The NSS is comparable to the Parental Interactive Bedtime Behaviour Scale (PIBBS; Morrell & Cortina-Borja, 2002). The PIBBS (Morell & Cortina-Borja, 2002) measures five parental strategies (self-reported) used to settle infants to sleep: a) encouraging infant autonomy (limit-setting); b) active physical comforting (active comforting), c) passive physical comforting (e.g., standing near crib without picking infant up), d) social comforting (e.g., reading a story), and e) movement (e.g., car rides). Two of these strategies, limit-setting and active comforting, have been significantly associated with infant sleep (Morell & Cortina-Borja, 2002). Johnson and McMahon (2008) found significant associations between active comforting and sleep problems among preschool-aged children. As with the MCISQ, however, the psychometric properties of the PIBBS when used by parents of preschool-aged children

(Johnson & McMahon, 2008) suggest that a measure specifically designed for this population is required. The NSS diverges from the PIBBS in the following ways: a) it was designed for use with parents of preschool-aged children (vs. infants) and b) it includes a different range of night-waking strategies (adding reward and punishment, not including settle by movement, feed, and social comforting).

In Chapter 6, I present a preliminary exploration of key variables identified in the model proposed in this dissertation (i.e., child- and parent-level factors that may influence parents' night-waking strategies; Figure 1.1). The emphasis of this chapter is on identifying variables that should be included in future investigations of the model, as it relates to parents' night-waking strategies. That is, the emphasis of this chapter is on factors associated with parents' night-waking strategies rather than night-waking itself. It is the first examination of the parent-report measures (described in Chapters 2 through 5) in relation to one another and to other key variables within the proposed model. First, I present data on significant bivariate correlations between parents' night-waking strategies and: a) child-level factors such as child age (Morrell & Cortina-Borja, 2002), sex (Anders et al., 1992), and children's behaviour (Belsky, 1984) and b) parent-level factors such as parental stress (Abidin, 1992) and mental health (Pinderhughes, Dodge, Bates, Petit, & Zelli, 2000), overall parenting approach (Hall et al., 2007; Owens-Stively, Frank, Smith, Hagino, Spirito, Arrigan, et al., 1997), parents' perceptions of children's sleep (Morrell & Steele, 2003), parents' agreement with night-waking strategies (Sadeh et al., 2007), and parents' thoughts and affect during night-waking interactions (Morrell, 1999). Next, I present data on the results of using those variables with significant bivariate associations

with parents' night-waking strategies as predictors of parents' self-reported night-waking strategy use.

In Chapter 7, I present a discussion of the key findings of this dissertation, study limitations, and implications for practice and future research.

The overarching purpose of this dissertation is to lay the foundation upon which a better understanding of parenting and night-waking can be built. This can ultimately enhance evidence-based interventions and reduce the burden children's night-waking has on preschool-aged children and their parents.

Overview of Study Methodology

Chapters 2, 3, 4, and 5 are concerned with the development of the instruments (the Children's Night-waking Behaviour Scale [CNBS], the Night-waking Vignettes Questionnaire [NVS], the Parental Cognitions about Night-waking Questionnaire [PCNQ], Night-waking Strategies Scale [NSS]) essential to subsequent explorations of the proposed model (Figure 1.1). Initial instrument development included qualitative pilot interviews with 10 mothers of night-waking preschool-aged children (Adamson, Gooberman-Hill, Wool-head, & Donovan, 2004), clinical experience, review of the academic pediatric sleep and parenting literatures (e.g., Fehlings et al., 2001; Morrell, 1999; Morrell & Cortina-Borja, 2002; Sadeh et al., 1997), the National Sleep Foundation 2004 Sleep in America Poll (NSF, 2004), and review of popular parenting and sleep literatures and websites (e.g., Weiss, 2006). Data from the pilot interviews were used to identify themes and constructs relevant to night-waking among preschool-aged children and to the experience of parenting a preschool-aged child who wakes at night (Coulombe & Reid, 2006). The themes were further examined, verified, and expanded upon using the

other research sources (e.g., literature review, clinical experience). Items were written to reflect these themes, resulting in pilot versions of the measures. Eight experts in pediatric sleep and five parents reviewed the pilot measures.

Following additional instrument refinement, the pilot measures, along with a number of questionnaires required for preliminary psychometric validation and evaluation of the proposed model, were administered to the validation sample of 296 mothers of preschool-aged children recruited from a variety of community sources in the London, Ontario area. All analyses presented in the present dissertation were conducted with this sample. The sample was composed of the 203 (61% of those contacted, 68% of those recruited; $M_{\text{age}} = 32.4$ years, $SD = 5.1$) of preschool-aged children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$) returned completed questionnaires. Ninety percent ($n = 184$) of the participating mothers indicated that they believed that children should sleep in their own bed or crib in their own bedroom. Only 1.5% of mothers ($n = 3$) believed that children should sleep in the family bed; 5% ($n = 11$) indicated that they believed in an “other” option (primarily allowing the child to decide whether s/he would prefer to sleep in the family bed or on their own).

Additional sample descriptions and study-specific methodologies are presented in each chapter. Briefly, exploratory factor analysis was used in the final stages of CNBS development (e.g., item selection, and identification of the underlying factor structure; Pett, Lackey, & Sullivan, 2003), followed by confirmatory factor analysis testing the fit of the proposed structure to the data (Byrne, 2006). Confirmatory factor analysis was also used to test the fit of the proposed PNTQ and NSS structures. Exploratory factor analysis was omitted from the development of these measures as there was more pre-existing

research available (e.g., Morrell, 1999; Morrell & Cortina-Borja, 2002; Johnson & McMahon, 2008) with which to form hypotheses about their underlying structure. Factor analysis was not used in the validation of the NVS, given the complex nature of having NVS items tied to specific vignettes. It should be noted that factor analysis was also not used in the development and validation of the ISVIS (Sadeh et al., 2007). Multiple regressions were used in Chapter 6 to examine the prediction of night-waking strategies when multiple potential influences are considered.

Relevance

Sleep is increasingly recognized as a pillar of health. The effects of inadequate sleep have been documented at the individual, family, and societal level (e.g., Dement & Vaughn, 1999; Gellman & King, 2001; Meltzer & Mindell, 2006; Mindell, 1993; Stepanski, 2002). To provide only a few examples: Children's inadequate sleep has been associated with a range of negative physical and mental health outcomes, including obesity and poorer psychological and behavioural functioning (Ievers-Landis, Storfer-Isser, Rosen, Johnson, & Redline, 2008), increased anxiety (Alfano, Ginsburg, & Kingery, 2007; Gregory & O'Connor, 2002), and reduced social competency and poorer performance on cognitive tasks (Blunden, Lushinton, Lorenzen, Martin, & Kennedy, 2005). Adequate sleep may play a significant role in preschool and school readiness (Jung, Molfese, Beswick, Jacobi-Vessels, & Molnar, 2009) and academic functioning (Dewald, Meijer, Oort, Kerkhof, & Bogels, 2010).

Children's sleep problems also significantly affect the sleep and functioning of parents. For example, children's shorter sleep duration has been associated with increased parenting stress (Ievers-Landis et al., 2008) and sleep problems in children aged 2 to 12

years have been significantly associated with increased sleepiness in parents (Boergers, Hart, Owens, Streisand, & Spirito, 2007). Further, children's sleep problems at age 8 years have been found to predict changes in mothers' negative affect and poorer parent-child relations two years later (Bell & Belsky, 2008).

In adults, inadequate sleep is associated with lower positive affect in daily life (Haack & Mullington, 2005), even after controlling for symptoms of anxiety and depression (Bower, Bylsma, Morris, & Rottenberg, 2010). Other effects of inadequate sleep among adults include increased fatigue and anger/aggression (Haack & Mullington, 2005), increased interpersonal frustration and greater tendency to blame others for problems (Kahn-Greene, Lipizzi, Conrad, Kamimori, & Killgore, 2006), and poorer problem-solving (Barnes & Hollenbeck, 2009). Of significant concern in their own right, these negative effects of inadequate sleep may also have important implications for parenting and parent-child relations (Coulombe & Reid, 2007).

Despite its relevance to both children's and parents' functioning, little is known about the sleep of preschool-aged children, including how parents respond to night-waking during night-time interactions with their preschool-aged children (night-waking strategy use), the association of these strategies to children's night-waking, and potential factors influencing night-waking strategy use. Exploring factors that make parents more vulnerable to the selection of maladaptive night-waking strategies (i.e., strategies that increase night-waking) can lead to improved sleep interventions, and most importantly, improved sleep. This can significantly impact the health and well-being of children who experience night-waking and their parents.

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Chapter 2: Preliminary Validation of the Children's Night-waking Behaviour Scale

Throughout the night, brief periods of arousal are common and not necessarily indicative of problematic sleep. Awakening without an easy return to sleep (“night-waking”), however, can be problematic for parents and children alike (Fehlings, Weiss, & Stephens, 2001). A recent survey of American parents (National Sleep Foundation [NSF], 2004) found that 31% of preschool-aged children wake once per night and require parental intervention (“help or assistance”), 3% wake twice per night, and 2% wake three times per night or more. The majority (80%) of parent-reported night-wakings last less than 15 minutes. Sixteen percent of parent-reported night-wakings, however, last 15 to 44 minutes and 4% last 45 minutes or longer (NSF, 2004). What happens during these night-waking episodes is unclear. A description of the night-waking episodes of preschool-aged children (i.e., children's night-waking behaviours), above and beyond their frequency and duration, is largely absent from the literature.

Although many models of sleep problems in young children are transactional in nature (e.g., Morrell & Steele, 2003; Sadeh & Anders, 1993), empirical investigations have emphasized parent-level factors associated with children's disturbed sleep. These factors include parents' psychological well-being, cognitions and affect, and parent behaviour (Johnson & McMahon, 2008; Morrell, 1999a; Morrell & Cortina-Borja, 2002; Sadeh, Flint-Ofir, Tirosh, & Tikotsky, 2007). Child-level factors, beyond gender and age, temperament (e.g., Hayes, Parker, Sallinen, & Davare, 2001; Scher, Epstein, Sadeh, Tirosh, & Lavie, 1992), locomotion (in infants only, Scher & Cohen, 2005), and signaling (i.e., crying, vocalization, again, in infants only, Goodlin-Jones, Burnham, Gaylor, & Anders, 2001) have received little research attention. What research that has

been conducted, has been conducted almost exclusively with parents of infants. Only one validated measure that I am aware of, the Tayside Children's Sleep Questionnaire (TCSQ; McGreavey, Donnan, Pagliari, & Sullivan, 2005) contains items that examine the behaviour of young children (aged 1 to 5 years) during night-time interactions with their parents (i.e., difficulty returning to sleep independently; sleeping in parents' bed; using a comforter and requiring parent to replace it; wanting a drink). These items are few in number (i.e., 4) and are treated as a single factor reflecting a need for parental intervention. Given the substantial behavioural repertoire of preschool-aged children during the day (e.g., requesting, walking, playing, talking, singing, climbing, defiance) it is unlikely that the TCSQ items adequately reflect the range of behaviours that may be enacted by preschool-aged children during the night (i.e., children's "night-waking behaviour").

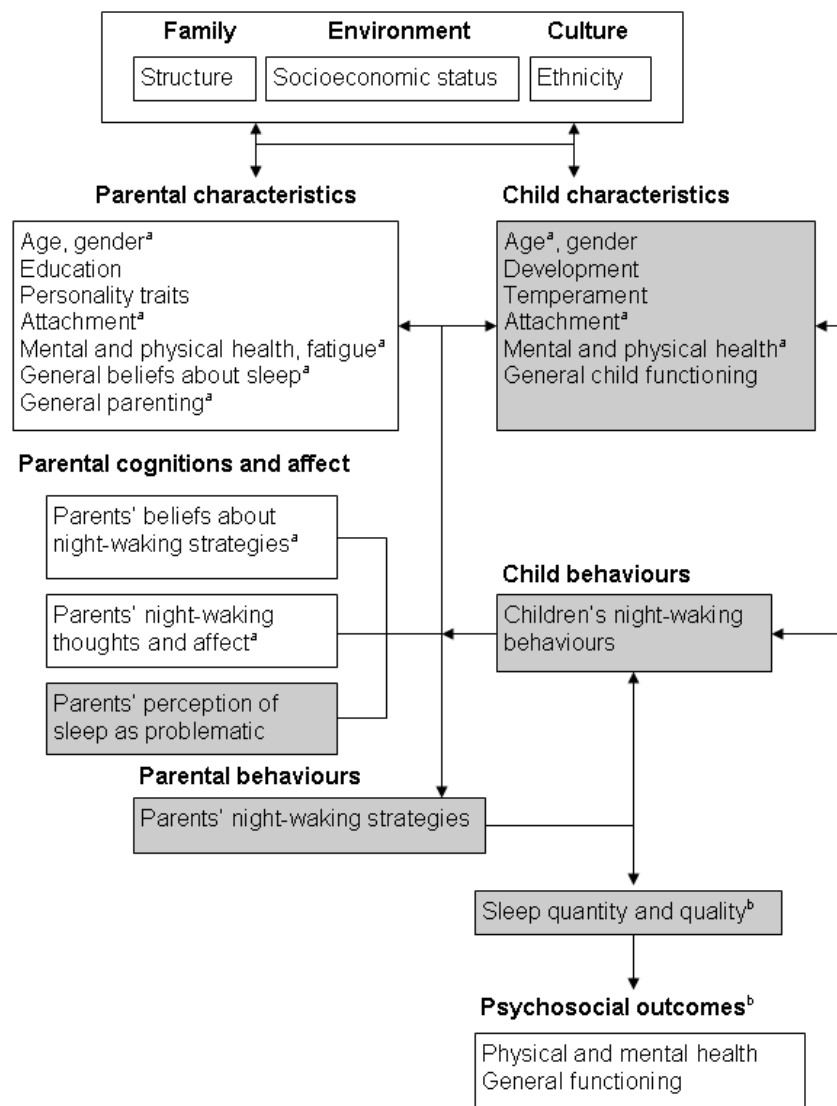
Theoretically, anything that a child is able to do during the day (e.g., talk, walk, play, make requests), they are able to do at night. Practically, however, only a small subset of children's behaviours are *appropriate* during the night. For the most part, these behaviours are sleeping and attempting to sleep. The increasing autonomy and independence-seeking that characterizes the preschool years, however, may lead children to engage in night-waking behaviours that are contrary to parents' goals for them. For example, rather than sleeping independently, children may attempt to prolong wakefulness or leave their room seeking parental attention. Parents involved in pilot work for this project (Coulombe & Reid, 2006) described children playing, arguing, tantrumming, bargaining, and attempting to sneak into their parents' bed during night-

waking episodes. This may present significant challenges for parents, above and beyond the decision to respond to or ignore children's signals (calling out, crying).

General models of parenting clearly acknowledge the influence of children's behaviour on parents' behaviour (see Abidin, 1992; Belsky, 1984; Critchley & Sanson, 2006), recognizing that challenging child behaviours can "undermine parental functioning" (Belsky, 1984, p.86). As empirically supported interventions for night-waking require substantial shifts in parent behaviour, the identification of determinants of, and barriers to, effective night-time parenting has been recommended (e.g., Sadeh, 2005; Sadeh et al., 2007). These barriers may include children's night-waking behaviours. Although little research has been conducted in this area, there is some evidence to support this idea. For example, Hayes et al. (2001) have proposed that once children become mobile enough to leave their room at night, signaling is accompanied by "parent-seeking" and increased likelihood of co-sleeping.

In the present report, I describe the development and preliminary validation of the Children's Night-waking Behaviour Scale (CNBS; Appendix A), a measure of night-waking behaviour among preschool-aged children. The development and preliminary validation of the CNBS is an essential step in testing a model of night-waking among preschool-aged children (Figure 2.1). In this transactional model, children's night-waking behaviours both influence and are influenced by parents' behaviour during night-waking episodes (i.e., parents' "night-waking strategies").

Figure 2.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Children’s night-waking behaviours are proposed to be key influences on parents’ night-waking strategies. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the Touchette et al. (2009) model that are not a central focus of the present study are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present study are indicated by a shaded text-box (in the child characteristics box, additions of interest are mental health and general child functioning; temperament and development were included in Touchette et al.’s model, but are not examined).



Based on pilot interviews and clinical experience, I expected that different categories or types of night-waking behaviour would exist and predicted that night-waking behaviours involving requests for active comforting would be associated with the frequency of night-waking, while night-waking behaviours involving more arousal or activity would be associated with the duration of night-waking. I also expected that behaviours reflecting requests for comfort would specifically elicit parents' active comforting behaviour, as evidenced by co-sleeping during the night. I expected that requests for activity and requests for comfort would be associated with parents' perceptions of their children's sleep as problematic, while fear-related behaviours (such as telling parents about having a nightmares) would not. Further, as sleep and behaviour during the day are related (Bates, Viken, Alexander, Beyers, & Stockton, 2002; Coulombe, Reid, Boyle, & Racine, 2010a,b), I examined children's night-waking behaviours in relation to a measure of children's mental health/ general child functioning ("general functioning"; the Strengths and Difficulties Questionnaire; Goodman, 1997). I expected that some consistency between children's night-waking behaviours and general functioning would emerge. For example, I expected that higher levels of emotional problems would be associated with greater frequency of fear-related night-waking behaviours.

Methods

The CNBS was developed as part of a larger project examining parenting and night-waking among a community sample of preschool-aged children and their families. The larger project was approved by the University of Western Ontario's Research Ethics

Board, under the Department of Psychology's Expedited Review process (Appendix B). Participants were provided with a \$15 gift card in appreciation for their time.

Participants

Mothers participating in the larger project were recruited from a variety of community sources in the London, Ontario area (parent-child drop-in playgroups, preschools, an existing recruitment database maintained by the Psychology Department of the University of Western Ontario, electronic notice boards). Completed questionnaires were received from 203 mothers (68% response rate). Most mothers ($M_{\text{age}} = 32.4$ years, $SD = 5.1$) were Caucasian (90%, $n = 182$) and had earned at least one college/trade diploma or university degree (69%, $n = 141$). Approximately 23% ($n = 46$) of families had an income of less than \$40,000 and approximately 18% ($n = 36$) had an income of \$100,000 or greater. Children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$; 48% male) were required to be healthy (i.e., not have any chronic illnesses that could be related to night-waking) and to have woken a minimum of one night every two weeks in the month prior to recruitment. The majority of mothers ($n = 104$, 51%) indicated that they thought their child had a mild sleep problem, 23% ($n = 46$) a moderate, and 5% ($n = 10$) a severe sleep problem; 21% ($n = 43$) did not think their child had a sleep problem. Most mothers ($n = 184$, 90%) indicated that they believed that children should sleep in their own bed or crib in their own bedroom.

Part 1: Development of the CNBS

Measures.

The Children's Night-waking Behavior Scale (CNBS). The pilot version of the CNBS consisted of a list of 20 night-waking behaviours (Appendix C), written following

interviews with parents of 10 night-waking preschool-aged children, review of the literature, and clinical experience. Data from the interviews were used to identify themes and constructs relevant to night-waking among preschool-aged children (Coulombe & Reid, 2006). The themes were further examined, verified, and expanded upon using the other research sources (e.g., literature review, clinical experience). Items were written to reflect these themes. Parents rated CNBS items on a 9-point ratio-based scale, according to how often each behaviour occurred during their child's night-wakings in the past month ("never" to "all of the time"). A 9-point scale with extreme anchors was chosen to reflect the preferences of parents in our pilot interviews for both absolute (e.g., "always") and fine-grained (e.g., between "rarely" and "sometimes") responses.

The 20 CNBS items included 16 items representing some type of request that could be made during a night-waking episode (e.g., "Ask for a drink", "Want to visit or talk") and 4 behaviours that were not thought to be conceptually related, but were behaviourally important: One item was written to measure self-soothing (i.e., "Settle himself back to sleep following a night-waking"), a desired child behavior in North American/ Western societies (see Jenni & O'Connor, 2005; Mindell, Sadeh, Koyhama, & How, 2010) and the goal of empirically supported night-waking interventions (e.g., Sadeh, 2005). One item was written to measure "calling out" (i.e., a verbal form of signaling). Two items were written to measure "getting out of bed" ("Leave the bed or crib", "Leave the room"). The ability of a child to "get out of bed" to make night-waking requests was identified by parents in the pilot work for this research project (Coulombe & Reid, 2006) as a key difference between parenting a preschool-aged child who wakes during the night and parenting a night-waking infant. The 16 request items were expected

to display conceptually meaningful inter-correlations (e.g., reflecting different types of requests) and thus their underlying structure was examined using exploratory factor analysis.

Analyses.

Identification of the underlying factor structure of the CNBS. Exploratory factor analyses (EFA) were conducted in order to identify the underlying structure of the 16 request items of the CNBS and to assist with item selection for the final measure.

According to EFA recommendations by Pett, Lackey, and Sullivan (2003), the following steps were taken: First, the inter-item correlations of the CNBS request items were examined. Second, request items without any inter-item correlations above .32 were discarded. Third, a series of EFAs were conducted using Principal axes factor (PAF) analysis with promax rotation. EFAs with one through four factors were examined (Gorsuch, 1997). PAF was selected as it is commonly used in the development of clinical instruments and, unlike other approaches such as maximum likelihood estimation, does not require the assumption of multivariate normality (Floyd & Widaman, 1995). PAF has been recommended over principal components analysis, which can inflate item loadings and lead to erroneous item selection (Gorsuch, 1997).

Confirmation of the factor structure of the CNBS. Following EFAs, a confirmatory factor analysis (CFA) with Maximum Likelihood Estimation (Byrne, 2006), was conducted using EQS version 6.1. The purpose of the CFA was to test the fit of CNBS structure, as identified in the EFAs, to the data. As Mardia's normalized estimate of multivariate non-normality was 31.70, suggesting considerable deviation from normality, robust chi-square (Satorra-Bentler) and goodness of fit statistics [Comparative

Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals; Byrne 2006] were examined.

Description of the CNBS subscales and items. Following the results of the CFA, missing CNBS items were imputed with the sample mean for that item. Less than 5% of responses were missing for any item. CNBS subscale scores were computed by taking the mean of the item scores in that subscale. As with CNBS items, therefore, CNBS subscale scores could range from 1 to 9, equivalent to “never” to “all of the time”.

Descriptive statistics (subscale and item means, standard deviations) and internal consistency statistics (Cronbach’s α , inter-item correlations) were examined. Repeated measures ANOVAs with Bonferroni corrections were used to examine whether children engaged in some types of night-waking requests more than others.

Test-retest reliability. Thirty-eight mothers (76% of those approached) who participated in the larger study also completed the CNBS one month after completing the baseline measure. Test-retest reliability was examined using Pearson’s correlations.

Results.

Item selection. Prior to EFA, and according to recommendation by Pett et al. (2003), 4 of the 16 request items were discarded due to low correlations with other items. During EFA, 1 additional item was discarded due to a low factor loadings and 1 item was discarded due to a cross loading on 2 factors.

Identification of the underlying factor structure of the CNBS. EFAs suggested that a four-factor solution was preferable to other solutions, based on examination of scree plots, eigenvalues, pattern of item loadings, and simplicity of interpretation (Pett et al., 2003). The first factor was labeled Activity; items reflected requests for activity or

stimulation that would maintain wakefulness. The second factor was labeled Fear; items reflected fear-based requests. The third factor was labeled Comfort; items reflected requests for active comforting. The fourth factor was labeled Instrumental; items reflected instrumental requests for brief parental interventions that may assist the child to settle independently.

Confirmation of the factor structure of the CNBS. The four-factor structure identified using EFA was then tested using CFA. CFA provided support for the hypothesized four-factor structure. The Satorra-Bentler χ^2 was 55.95 ($df = 29, p = .002$). The robust CFI of 0.93 was above the criteria of 0.90, which suggested a good fit between the hypothesized model and observed data (Byrne, 2006). The robust RMSEA was .07 (90% CI = .04 -.10), also indicating an acceptable fit for the proposed model. Although a RMSEA value of 0.05 or less would have been preferable, values up to 0.08 have been proposed as acceptable fit (see Byrne, 2006).

Description of the CNBS subscale and items. The final CNBS (Appendix A) consists of a total of 14 items: four request subscales (10 items) and four behavioural items. CNBS item means, standard deviations, factor loadings from the CFA, and internal consistency statistics (Cronbach's α , mean inter-item correlations) are presented in Table 2.1. Scores for the behavioural items are calculated as follows: A child's "independent sleep" score is his or her score on the item "returns to sleep on his/her own". A child's "calling out" score is his or her score on the item "calls out". A child's "out of bed" score is the mean of his or her score on the items "leaves his/her room" and "leaves his/her bed"; these items are combined as they were highly inter-correlated in preliminary analyses (inter-item $r = .90$).

Table 2.1

CNBS item means, standard deviations, factor-loadings, and reliability statistics

	<i>M</i>	<i>SD</i>	Loading	Reliability	
				α (<i>M r</i>)	Test-retest <i>r</i>
Behaviour items					
Settles to sleep	3.0	2.1	--	--	.56
Calls out	5.8	3.0	--	--	.67
Gets out of bed	5.2	3.0	--	-- (.90)	.52
Leaves bed or crib	5.4	3.1	--	--	--
Leaves the room	5.0	3.1	--	--	--
CNBS request subscales					
Activity subscale	2.0	1.5	--	.75 (.51)	.69
Asks for television to be on	1.9	1.9	.50	--	--
Wants to visit or talk	2.2	2.0	.86	--	--
Wants to play	1.8	1.6	.82	--	--
Fear Subscale	2.5	2.0	--	.83 (.72)	.66
Says s/he has had a nightmare	2.3	2.0	.79	--	--
Says s/he is scared (other than from a nightmare, e.g., dark, something in closet)	2.7	2.3	.92	--	--
Comfort subscale	5.2	2.3	--	.60 (.33)	.67
Asks for a cuddle, back rub, touch, etc.,	4.6	3.1	.56	--	--
Asks parent to stay with him/her	5.6	3.1	.71	--	--
Asks to stay in parent's bed	5.3	3.2	.48	--	--
Instrumental subscale	3.1	2.2	--	.59 (.42)	.74
Asks to be tucked in	3.0	2.6	.62	--	--

Asks for a favourite toy or stuffed animal	3.3	2.7	.68	--	--
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Note: CNBS instructions asked parents to: “Rate how often [their] child does the following things when he wakes at night”. A 9-point ratio-based rating scale, with anchors at every other response option (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”) was used.

-- = not applicable, not examined.

On average, children tended to settle back to sleep independently approximately 1/4 of the time they awoke. Wakings involved calling out and getting out of bed (~ 1/2 time, each). Approximately 1/2 of wakings involved requests for comfort, and approximately 1/4 of the time wakings involved activity, fear, or instrumental requests. Significant differences were observed among the mean scores on the comfort, activity, fear, and instrumental request subscales ($F [3, 202] = 123.04, p < .001$).

One month test-retest reliability of the CNBS activity, fear, comfort, and instrumental request subscales ranged from 0.66 to 0.74 (Table 2.1). In general, test-retest reliability coefficients of > 0.70 are considered adequate. The stability of young children’s sleep, however, has been questioned in the literature (Jenni, Zinggeler Fuhrer, Iglowstein, Molinari, & Largo, 2005; Matthey, 2001; Scher, Zuckerman, & Epstein, 2005), suggesting that lower coefficients may be appropriate.

Part 2: Association of CNBS Subscales to Night-waking, Mothers’ Perceptions of Sleep as Problematic, and Children’s Day-time Behaviour

The association of CNBS activity, fear, comfort, and instrumental request subscales to the frequency and duration of children’s night-waking, mothers’ provision of active comforting (i.e., frequency of co-sleeping), mothers’ perceptions of sleep as

problematic, and children's day-time behaviour were examined. It was predicted that: a) CNBS activity requests would be positively correlated with the duration of night-waking, mothers' perception of sleep as problematic, and children's hyperactivity during the day (indicative of a general tendency towards heightened physiological arousal). b) CNBS fear requests would be positively correlated with children's emotional problems (indicative of a general tendency towards emotional arousal and anxiety). c) CNBS comfort requests would be positively associated with the frequency of night-waking, the frequency of co-sleeping, and mothers' perceptions of night-waking as problematic. d) CNBS instrumental requests would be positively correlated with the duration of night-waking (reflective of the tendency, reported by some parents in my pilot work, of children to chain several instrumental requests together).

The association of children's independent sleep (settling back to sleep without any assistance), calling out, and "getting out bed" to night-waking, the frequency of co-sleeping, mothers' perceptions of sleep as problematic, and children's day-time behaviour was also explored. It was predicted that: a) Independent sleep would be negatively correlated with the frequency and duration of night-waking, the frequency of co-sleeping, and mothers' perceptions of sleep as problematic. b) Calling out would be positively associated with the frequency of co-sleeping. c) Getting out of bed would be positively correlated with the frequency and duration of night-waking, mothers' perceptions of sleep as problematic, the frequency of co-sleeping, and hyperactivity, conduct, and emotional problems (indicative of a general tendency towards poorer self-regulation).

Measures.

Modified Infant Sleep Questionnaire (ISQ). Two items from the ISQ (Morrell, 1999b) adapted for use by parents of preschool-aged children (DiLeo, Lewis, Taliaferro, 2005) were used to measure the frequency of children's night-waking: a) the number of nights children woke per week (9-point scale; "none", "less than once a week", "1 night a week" to "7 nights a week") and b) the number of times each night children woke and needed comforting (6-point scale; "does not wake", "once a night" to "5 or more times per night"); these items were multiplied to provide an estimate of the number of night-wakings per week ("frequency"). Individual ISQ items were used to measure: a) the average duration of night-wakings ("duration"; "less than 10 minutes", "10 to 20 minutes", "20 to 30 minutes", "30 to 40 minutes", "40 to 50 minutes", "50 to 60 minutes", "1 hour or longer"), b) how often parents take their child into their own bed or lie with them in response to night-wakings ("frequency of co-sleeping"; 9-point scale; "none", "less than once a week", "1 night a week" to "7 nights a week"); and c) whether mothers thought their child had a sleep problem ("perception of child's sleep as problematic"; "no", "yes, mild" "yes, moderate", "yes, severe"). Missing items (< 5 %) were imputed with the item mode.

Strengths and Difficulties Questionnaire (SDQ). The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) examines parent-rated behaviours and emotions in children aged 2 to 18 years. It is a widely used measure, with multiple translations, and well established reliability and validity (Goodman, 2001; Goodman & Goodman, 2009). The SDQ hyperactivity ($M = 1.8$, $SD = .5$), emotional problems ($M = 1.3$, $SD = .3$), and conduct problems ($M = 1.5$, $SD = .4$) subscales were used in this study. Higher scores indicate greater difficulties. Internal consistency statistics in our sample were: $\alpha = .77$

(hyperactivity), $\alpha = .56$ (emotional problems), and $\alpha = .72$ (conduct problems). Children's scores were the mean of SDQ subscale items. Missing items (< 5%) were imputed with the sample mean for that item, prior to computing subscale scores.

Analyses.

Associations among CNBS and categorical (ISQ) variables were examined using Spearman's correlations. Associations among CNBS and continuous (SDQ) variables were examined using Pearson's product-moment correlations. As all hypotheses included predictions about specific directions of association (i.e., positive or negative correlations), one-tailed tests were used. Given the number of analyses conducted, p values between .05 and .01 were considered trends in the data and $< .01$ were considered statistically significant.

Results

Table 2.2 presents correlations between CNBS and ISQ and SDQ variables. As predicted, activity requests were positively correlated with the duration of night-waking, mothers' perception of sleep as problematic, and hyperactivity. Fear requests were positively correlated with children's emotional problems. Comfort requests were positively associated with the frequency of night-waking, the frequency of co-sleeping, and mothers' perceptions of night-waking as problematic. Instrumental requests were positively correlated with the duration of night-waking.

Table 2.2

CNBS subscale means, standard deviations, and correlations with children's night-waking and day-time functioning

	Infant Sleep Questionnaire (ISQ) ¹				Strengths and Difficulties Questionnaire (SDQ) ²		
	Frequency	Duration	Co-sleeping	Perception of sleep problem	Hyper-activity	Conduct problems	Emotional problems
CNBS behaviour items							
Settles to sleep	-.26**	-.08	-.16**	-.15*	.02	.08	-.01
Calls out	.08	.06	.01	.08	.10	.01	.11
Gets out of bed	.23**	.08	.28**	.09	-.04	.07	.12*
CNBS request subscales							
Activity	.08	.39**	.06	.25**	.28**	.15*	.12*
Fear	-.03	.07	-.02	.07	.12*	.05	.26**
Comfort	.29**	.12*	.51**	.14*	.04	-.03	.16*
Instrumental	-.06	.24**	-.24**	.00	.10	.03	.12*

Note: CNBS scores can range from a minimum of 1 to a maximum of 9 (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”).

* $p < 0.05$ (1-tailed) ** $p < 0.01$ (1-tailed). ¹ All ISQ correlations use Spearman’s *rho*. ² All SDQ correlations use Pearson’s *r*.

Independent sleep was negatively correlated with the frequency, but not duration, of night-waking; the frequency of co-sleeping; and mothers' perceptions of sleep as problematic. Contrary to hypotheses, calling out was not associated with the frequency of co-sleeping. Getting out of bed was positively correlated with the frequency of night-waking, the frequency of co-sleeping, and children's emotional problems. Getting out of bed was not significantly associated with the duration of night-waking, mothers' perceptions of sleep as problematic, hyperactivity, or conduct problems.

Discussion

To my knowledge, the CNBS is the first parent-rated measure of night-waking behaviours among preschool-aged children. Although further testing is required (e.g., validation against observational measures, replication of study findings in a second sample), the preliminary psychometric properties of the CNBS are promising. The utility of the CNBS in future tests of the proposed model of night-waking (Figure 2.1) is also promising, given the significant predicted associations among CNBS subscales and items and children's general functioning, children's night-waking, mothers' perceptions of sleep as problematic, and mothers' use of co-sleeping (a proxy for active comforting, a night-waking strategy).

As predicted, separate factors (types of children's requests) emerged from CNBS items and provided a reasonable fit to the data. Internal consistency and test-retest reliability statistics were acceptable but less than ideal (i.e., $< .80$), a finding that is common to many measures in the pediatric sleep field (e.g., Henderson & Jordan, 2010; Johnson & McMahon, 2008; Matthey, 2001; Morrell & Cortina-Borja, 2002). Lower test-retest reliability may represent natural instability in young children's sleep (Goodlin-

Jones et al., 2001; Jenni et al., 2005; Scher & Cohen, 2005). A recent polysomnographic study (Montgomery-Downs, O'Brien, Gulliver & Gozal, 2006) suggests that children's sleep characteristics undergo considerable shifts during the preschool to early school-age years (age 3 to 7 years).

The results of my analyses suggest that returning to sleep independently, calling out, leaving the room, and requesting comfort are relatively common features of night-waking in preschool-aged children. Based on the subscale averages, these behaviors were occurring one-quarter to more than one-half of time when children woke at night during the one-month period that parents were reporting on. To my knowledge this is the first study to explicitly consider the diversity of children's night-waking behaviours and to compare the frequency with which these behaviours occur.

Although requests for comfort occur most frequently, they are by no means the only type of request or activity that parents encounter during night-waking episodes. The literature to date, however, has implicitly treated children's night-waking behaviour as if all night-wakings were motivated by a desire for active comforting. As such, models of children's sleep have focused almost exclusively on determinants and outcomes of active comforting (e.g., Johnson & McMahon, 2008), and night-waking interventions have focused primarily on shifting parents from active comforting to limit-setting in the face of comfort requests (Sadeh, 2005). Far less information exists with which to guide parents about their responses to other types of children's night-waking behaviours, such as instrumental and activity requests. The present study suggests that anticipatory guidance should be developed regarding other types of night-waking requests. When working with parents seeking help for their children's night-waking, the range of night-waking

behaviours exhibited and parents' responses to them, including how problematic parents consider them to be, should be routinely explored.

The location of children's requests and the manner in which requests are made should also be explored with parents. Parents in the pilot study for this project (Coulombe & Reid, 2006) reported that parent-seeking (children leaving their rooms; Hayes et al., 2001) made ignoring children's requests more difficult. In the present study, children's getting out of bed was associated with more frequent co-sleeping and more frequent night-waking. Although it cannot be assumed that every time children leave their rooms they are making comfort requests, it is likely that this is often the case (in the present study comfort requests occurred most frequently when children woke and made requests). It may be that leaving the room to make comfort requests makes limit-setting more difficult for parents, increasing the likelihood of co-sleeping. For example, in order to resist the comfort requests of children who leave their rooms, parents must leave their own beds and return their children to their rooms. In order to resist the comfort requests of children who call out from their rooms, however, parents are literally required to do nothing. Although psychologically difficult, doing nothing is likely less physically demanding than leaving bed, particularly in the middle of the night and after having been asleep. Parents' desire to stay in bed works in favour of limit-setting when children call out and against limit-setting when children leave their room. Even occasional or intermittent acquiescence to co-sleeping when children engage in parent-seeking, however, will reinforce night-waking and make parent-seeking more likely to occur. A growing body of research suggests that reactive co-sleeping (co-sleeping in response to children's night-waking, rather than as a reflection of parents' beliefs and preferences)

may be a particularly problematic feature of the preschool years (Hayes et al., 2001; Jenni et al., 2005; Ramos, Youngclarke, & Anderson, 2007). The present study supports Hayes et al.'s (2001) assertion that parent-seeking may partially explain this trend.

As the ability to make clear, distinct, and verbal requests emerges, parents must decide whether to acquiesce to their children's requests; this decision may depend on the type of request that is made. It is interesting to note that in the present study, children's activity requests, which were relatively infrequent (occurring less than 1/4 of the time), were moderately correlated with mothers' perceptions of their children's sleep as problematic. Further investigation of this finding is required. Mothers may view activity requests as problematic due to their inconsistency with the expectation that children should be sleeping. Alternately, the association may be influenced by a third variable such as the duration of night-waking or a generally poor fit between children's behaviour and the demands of his or her environment. For example, in the present study, activity requests were positively associated with the duration of night-waking. Longer night-waking episodes may be more disruptive to parents' sleep and therefore be regarded as more problematic. Activity requests were also associated with greater hyperactivity. The association between mothers' perceptions of children's sleep as problematic and children's activity requests may be influenced by a general pattern of increased activity, which can be difficult for parents to manage.

There is considerable research evidence supporting an association between children's sleep and symptoms of inattention and hyperactivity (e.g., Hiscock, Canterford, Ukoumunne, & Wake, 2007). The present study suggests that hyperactivity during the day is associated with inappropriate activity at night (i.e., requests reflecting a

desire to prolong wakefulness or an inability to settle). An association between children's emotional problems during the day and their complaints of fear at night was also observed. Similar associations between emotional problems and nightmares have been reported in older children (age 4 to 16 years; Coulombe & Reid, 2010 a,b). These findings provide additional support for the idea that children's sleep problems and day-time difficulties may be manifestations of a common underlying construct (Coulombe & Reid, 2010 a,b). Professionals working with children should be mindful to assess day-time correlates of presenting sleep problems and vice versa.

Limitations and Future Directions

There are several limitations to this study. First, I recognize that this study is cross-sectional and that causality or temporal associations cannot be inferred. Alternate explanations for the findings exist and should be explored. Longitudinal and observational studies will be required to better understand how children's night-waking behaviour shapes, and is shaped by, parents' behaviours. Second, the extent to which the results of the present study are generalizable may be limited to those families represented in our sample (Caucasian, educated mothers, who are not intentional co-sleepers, and whose children live with them and are healthy). Third, as mentioned above, the validation of the CNBS is preliminary and requires further effort. Notably, the present study was conducted with parents of preschool-aged children recruited from a community sample. The performance of the CNBS among samples of children with clinically significant sleep problems or with clinically significant levels of attention, behaviour, or emotional problems was not examined. This is an area for future research. Additional areas for future research include examining age, sex, and other demographic differences in the

properties of the CNBS (Figure 2.1), examining changes in CNBS scores over time, and examining changes in CNBS scores in response to changes in parenting behaviour.

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Chapter 3: Preliminary validation of the Night-waking Vignettes Scale

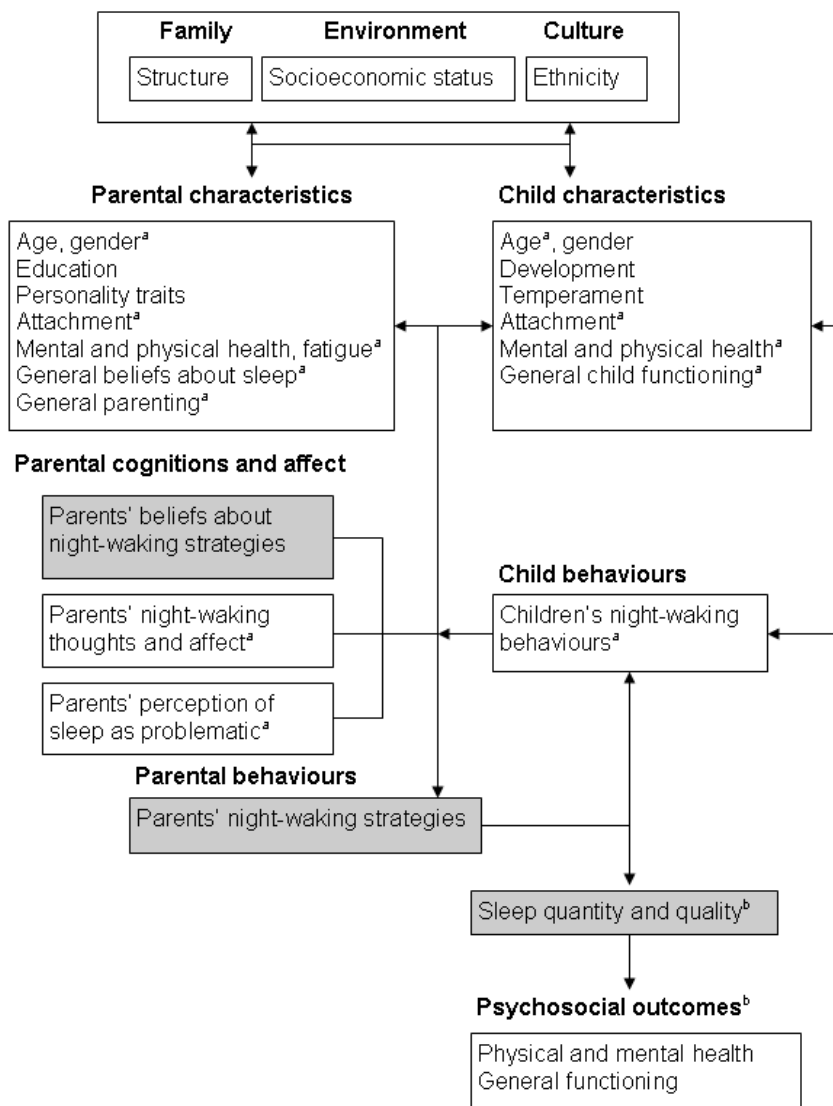
Approximately 30% of preschool-aged children (2-to 5-year-olds) wake during the night and make requests for parental assistance (e.g., “can I have a drink?”) or presence (e.g., “can I sleep with you?”) (“night-waking”; National Sleep Foundation [NSF], 2004). Many parents must decide how to respond to these requests on a nightly basis. The choices that parents make during night-waking episodes can determine the quality of children’s sleep over time (Morrell & Steele, 2003; Sadeh & Anders, 1993). For example, parents who engage in higher levels of active comforting (e.g., cuddling, lying with child) and lower levels of limit-setting (e.g., ignoring or resisting children’s night-time requests and demands) tend to have infants whose sleep problems persist into the second year of life (Morrell & Cortina-Borja, 2002). Active comforting has also been associated with sleep problems among preschool-aged children (Johnson & McMahon, 2008).

Despite their relevance to the development and maintenance of children’s sleep problems, very little is known about factors that influence parents’ responses to night-waking (“parents’ night-waking strategies”). This is particularly true of the night-waking strategies of parents of preschool-aged children. Increased knowledge about influences on parents’ night-waking strategies can enable the identification of families for whom night-waking may become problematic over time. Greater understanding of the influences on parents’ night-waking strategies may also support prevention and intervention efforts in both primary care and specialized settings. Potential influences on parents’ night-waking include parent- and child-level factors, such as parents’ ability to respond to challenging situations (Johnson & McMahon, 2008), parents’ thoughts during

night-waking episodes (Johnson & McMahon, 2008; Morrell, 1999a), and children's behaviour (e.g., leaving the room; Coulombe, 2010) and temperament (Hayes, Parker, Sallinen, & Davare, 2001) (Figure 3.1). Parents' beliefs about how they should respond to night-waking, and specifically their agreement with night-waking strategies, may also influence their responses to night-waking (Sadeh, Flint-Ofir, Tirosh, & Tikotzky, 2007). The importance of parental beliefs as influences on parenting behaviour has been highlighted in the general parenting literature (Abidin, 1992), but has received limited attention in the pediatric sleep literature.

Although the relative merits of night-waking strategies such as limit-setting (e.g., ignoring or resisting children's night-waking requests) and active comforting (e.g., cuddling, co-sleeping in response to night-waking) are hotly debated in the popular parenting literature (Ramos & Youngclarke, 2006), very little is known about the extent to which community samples of parents of preschool-aged children agree or disagree with these strategies. Existing research focuses almost exclusively on parents' beliefs as determinants of active comforting. This focus is likely related to the debate surrounding active comforting as a maladaptive strategy associated with children's sleep problems. Although for some parents, active comforting may be the result of challenging child behaviours (Hayes et al., 2001) or problematic parental thoughts and affect (Morrell, 1999a; Morrell & Steele, 2003), other parents provide active comfort as part of a larger parenting belief system (Crncec, Matthey, & Nementh, 2010; Green & Groves, 2008; McKenna & Volpe, 2007; Ramos, Youngclarke, & Anderson, 2007).

Figure 3.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions (i.e., their thoughts about night-waking and agreement with night-waking strategies) and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the model that are not a central focus of the present study are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present study are indicated by a shaded text-box.



That is, some parents engage in active comforting despite their preferences not to, while other parents engage in active comforting because they believe that it is the right night-waking strategy for their family. Proponents of active comforting approaches tend to fundamentally disagree with limit-setting, viewing it as emotionally and relationally harmful, and tantamount to ignoring or neglecting a child during the day³. Parents who provide active comforting as part of a larger belief system do not tend to perceive children's night-waking and requests for active comforting to be inherently problematic (Ramos et al., 2007).

An interesting question that has only recently been discussed in the literature is the question of what happens when parents' beliefs are incompatible with their night-time parenting strategies. That is, what is the effect of enacting or attempting to enact a strategy that one fundamentally disagrees with? For example, Sadeh et al. (2007) found that infants with clinically significant sleep problems had parents who endorsed both high levels of agreement with limit-setting in hypothetical vignettes and high levels of concern about limit-setting with their own child. Various authors have suggested that incompatibility between parents' beliefs and strategies may result in a greater perception of children's night-waking as problematic (Ramos et al., 2007), increased negative affect (e.g., doubts, anger) during night-waking episodes (Morrell, 1999a; Morrell & Steele, 2003), less confidence in one's parenting ability (Morrell, 1999a), less consistent

³ Although there is little empirical support for the belief that limit-setting is harmful to young children (Crnec et al., 2010), the influence of this perspective can be seen in a number of widely available parenting resources (Ramos & Youngclarke, 2006).

responding during night-waking episodes (Morrell, 1999a), and increased sleep problems (Ramos et al., 2007; Sadeh et al., 2007).

The idea that incompatibility between parents' agreement with night-waking strategies and their use of those strategies plays a role in children's night-waking has important implications for intervention. Advice that is contrary to parents' existing beliefs presents serious challenges for parents (Belsky, 1984). Virtually all empirically-supported behavioural sleep interventions involve a shift away from active comforting and towards limit-setting (Crncec et al., 2010; Morgenthaler, Owens, Alessi, Boehlecke, Brown, Coleman, et al., 2006; Sadeh, 2005). For parents who present to a sleep clinic or professional who practices within an evidence-based framework, limit-setting will almost certainly be discussed as part of treatment. Although highly effective, limit-setting is often distressing for parents and treatment drop-out is a concern (Sadeh, 2005). This may be particularly true for parents who fundamentally disagree with limit-setting, but who are presented with a lack of other empirically supported options (Crnec et al., 2010). To my knowledge, parents' agreement with limit-setting or with other night-waking strategies prior to intervention has not been examined among parents of preschool-aged children. Nor have parents' agreement with night-waking strategies been examined as a factor in treatment compliance, adherence, or success.

Currently, no published instrument exists with which to measure agreement with night-waking strategies among parents of preschool-aged children. In the study at hand, I present the Night-waking Vignettes Scale (NVS; Appendix A), a measure of parents' agreement with four night-waking strategies. The NVS is an essential step in developing and testing a model of night-waking among preschool-aged children (Figure 3.1). In this

model, parents' beliefs about night-waking strategies influence parents' thoughts and affect during night-waking episodes, which in turn influence parent's night-waking strategies. Two of the night-waking strategies (limit-setting and active comforting) are widely discussed in the pediatric and popular literatures (Crnec et al., 2010; Ramos & Youngclarke, 2006) and in theory are conceptually opposing strategies. The third approach, providing rewards for appropriate night-time behaviour (e.g., not calling out during night-wakings) is often an adjunct to limit-setting interventions (Owens, Palermo, & Rosen, 2002). The fourth approach, punishment, is less frequently discussed in the sleep literature, but was reported by parents in a pilot for the present study (Coulombe & Reid, 2006). Punishment is widely researched in the general parenting literature (e.g., Belsky, 1984; Bugental, 1992; Critchley & Sanson, 2006).

Similar to Sadeh and colleagues' Infant Sleep Vignettes Interpretation Scale (2007), the NVS presents parents with a series of vignettes describing hypothetical sleep scenarios with hypothetical children rather than asking parents about their own experiences or their own children. The NVS diverges from the ISVIS in the following ways: a) it was designed specifically for use with parents of preschool-aged children (vs. parents of infants), b) it focuses exclusively on characteristics of children's behaviour during night-waking episodes (vs. behaviour that occurs during the day), and c) it measures agreement with four night-waking strategies versus two (limit-setting and active comforting).

Parenting vignettes have been used successfully to study how parenting behaviour may be influenced by changes in contextual factors including types of child behaviour (e.g., Critchley & Sanson, 2006). Thus, in addition to examining associations between

parents' agreement with night-waking strategies and children's sleep, we also examined whether parents' agreement with night-waking strategies varied according to characteristics of night-waking episodes. Specifically, I examined whether parents' agreement with night-waking strategies was different in vignettes that described high levels of child affect than in vignettes that described low levels of child affect. I also examined whether parents' agreement with night-waking strategies was different across vignettes depicting three types of child behaviours: awake and active (e.g. playing), making requests for comfort, and making instrumental requests (e.g., a drink). This is of interest as the extent to which parents' agreement with night-waking strategies is stable across night-waking situations or varies according to the demands of the situation is unknown. Parents in the pilot for the present study (Coulombe & Reid, 2006) indicated that acquiescence to children's demands was at least partially determined by the type of request made during night-wakings. For example, parents described fewer concerns about responding to requests that they perceived as brief and relatively innocuous, such as glasses of water or being tucked in. In model of night-waking presented above (Figure 3.1), parents' night-waking beliefs are associated with children's night-waking behaviour.

Hypotheses

It was predicted that parents would endorse greater agreement with limit-setting and active comforting strategies than with rewards and punishment. As existing theory suggests that active comforting fosters children's dependence on parents to return to sleep, it was predicted that agreement with active comforting would be positively associated with the frequency of night-waking as well as with the frequency with which active comforting (co-sleeping) is provided. Conversely, it was predicted that agreement

with limit-setting would be negatively correlated with the frequency and duration of night-waking as well as with the frequency with which active comforting is provided. No predictions were made regarding the associations between night-waking variables and agreement with rewards or punishment. No predictions were made about the effects of varying the characteristics of the night-waking episodes on agreement with night-waking strategies. Although these associations will be explored, insufficient research or theory currently exists with which to build hypotheses.

Methods

The Night-waking Vignettes Scale (NVS; Appendix A) was created as part of a larger project exploring parents' responses to night-waking among preschool-aged children. The larger project was approved by the University of Western Ontario's Research Ethics Board, under the Department of Psychology's Expedited Review process (Appendix B). Participants were provided with a \$15 gift card in appreciation for their time.

Development of the Night-waking Vignettes Scale

The NVS underwent the following development procedures: First, a series of 21 vignettes describing a variety of night-waking events was constructed. Night-waking events were based on clinical and research experience, interviews with 10 parents participating in a pilot for the larger project, review of parenting websites and web-forums, and review of the research (e.g., Sadeh et al., 2007) and popular literatures. Data from the pilot interviews were used to identify themes and constructs relevant to night-waking among preschool-aged children and to the experience of parenting a preschool-aged child who wakes at night (Coulombe & Reid, 2006). The themes were further

examined, verified, and expanded upon using the other research sources (e.g., literature review, clinical experience). NVS vignettes and items were written to reflect these themes.

All night-waking vignettes included at least one child behaviour that occurred after the child had already been asleep and would attract parental attention during the night (e.g., child asks for a drink, child is heard playing with a toy, child enters parent's room). There was no restriction in the vignettes that parents also had to have been asleep prior to becoming aware of the child's night-waking. Vignettes were written to vary in terms of the demandingness of the children's night-waking behaviour (e.g., low vs. high affect is present, types of child behaviours or requests made).

Second, a draft version of the vignettes was given to a convenience sample of 5 parents who ranked the behaviours depicted in the night-waking vignettes according to overall demandingness and provided general feedback. Based on this feedback, 13 vignettes were selected for further review. Vignettes were selected to represent a range of demandingness, based on several characteristics, including the presence or absence of a request, the presence or absence of child affect (i.e., crying or yelling), the location in which the vignette takes place (i.e., in or out of bed), and the type of night-waking behaviour depicted (e.g., asking for a cuddle, playing).

Third, items reflecting each of four different parental responses were written for each of the 13 vignettes: (a) limit-setting (e.g., "Ignore his behaviour during the night"), (b) active comforting (e.g., "Stay with him until he falls asleep"), (c) reward (e.g., "Tell him that if he doesn't call out at night, he'll get a treat in the morning"), and (d) punishment (e.g., "Punish him for calling out at night"). As with the vignettes, items were

based on interviews with parents, clinical and research experience, and review of academic literature (e.g., Morrell & Cortina-Borja, 2002; Sadeh et al., 2007) and popular media. Five graduate and undergraduate students rated the clarity of the vignettes and items (1 = “not at all clear” to 5 = “very clear”; Appendix D) to provide an estimate of readability, and 20 graduate and undergraduate students who rated the NVS items for how consistent they were with definitions of each night-waking strategy (1 = “not at all consistent” to 5 = “very consistent”; Appendix D) (Hinkin & Tracey, 1999). Items with mean clarity and consistency ratings below 4 on the 5-point rating scale were re-written. Five additional parents and eight experts in pediatric sleep reviewed the pilot version of the NVS, including instructions and response options (Appendix D).

All 13 vignettes were included in the final pilot version of NVS (Appendix C) which was then administered, as part of a larger questionnaire package, to the 296 mothers of preschool-aged children who participated in the larger project. The vignettes were modified such that parents were asked to rate children of the same sex and age as their own child. Mothers were asked to read the vignettes and rate their agreement with each item on a scale from 1 (“strongly disagree”) to 6 (“strongly agree”). Data from these mothers, described next, were used to further refine the NVS and to explore associations among NVS scores and the frequency and duration of children’s night-waking.

Participants

Mothers participating in the larger project were recruited from a variety of community sources in the London, Ontario area (parent-child drop-in playgroups, preschools, an existing recruitment database maintained by the Psychology Department of the University of Western Ontario, electronic notice boards). Completed

questionnaires were received from 203 mothers (68% response rate). Most mothers ($M_{\text{age}} = 32.4$ years, $SD = 5.1$) were Caucasian (90%, $n = 182$) and had earned at least one college/trade diploma or university degree (69%, $n = 141$). Approximately 23% ($n = 46$) of families had an income of less than \$40,000 and approximately 18% ($n = 36$) had an income of \$100,000 or greater. Children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$; 48% male) were required to be healthy (i.e., not have any chronic illnesses that could be related to night-waking) and to have woken a minimum of one night every two weeks in the month prior to recruitment. None of the children in this study had been previously diagnosed with a sleep disorder; 6% had taken a medication in the past to help with sleep (generally when sick or unwell). The majority of mothers ($n = 104$, 51%) indicated that they thought their child had a mild sleep problem, 23% ($n = 46$) a moderate, and 5% ($n = 10$) a severe sleep problem; 21% ($n = 43$) did not think their child had a sleep problem. Most mothers ($n = 184$, 90%) indicated that they believed that children should sleep in their own bed or crib in their own bedroom.

Analyses

NVS Item Selection.

Preliminary analyses of the NVS aimed to reduce the number of vignettes. Our goal was to decrease the response burden associated with longer measures (Streiner & Norman, 1995). Two of the 13 vignettes were included as control vignettes, in which limit-setting would not be appropriate (e.g., a child asks to go the bathroom); these vignettes were not included in subsequent analyses. First, preliminary item analyses were conducted on the remaining 11 vignettes to examine the endorsement frequencies, distribution, means and standard deviation of the NVS items. Items were grouped

according to the night-waking strategies they represented (later forming agreement subscale scores) and any item that appeared to be performing in a markedly different manner than the other items in its subscale was identified as a potential candidate for deletion (e.g., a limit-setting item with a very low mean in comparison to other hypothesized limit-setting items). Next, preliminary “agreement” scores were computed by taking the average of mothers’ scores on the limit-setting, active comforting, reward, and punishment items. Item-total correlations for each subscale item, as well as the correlations of the items with the other agreement subscale scores were examined. Items with low item-total correlations ($<.30$) and/ or moderate correlations with other subscales ($>.35$) were identified as potential candidates for deletion. Because each item was written for a specific vignette, deleting an item would also result in the deletion of its vignette. The final decision to delete a vignette represented a balance between two factors: a) the performance of all items linked to that vignette, and b) the effect that deleting the vignette would have on the range of demandingness (i.e., high vs. low affect, type of request) represented in the measure. Three vignettes were deleted as a result of this process.

Description of the NVS Primary Agreement Subscales.

Parents’ agreement with limit-setting, active comforting, rewards, and punishment were calculated following the selection of the final vignettes. These scores, referred to hereinafter as parents’ primary agreement subscale scores, were the mean of parents’ scores on the limit-setting, active comforting, rewards, and punishment items, respectively. The internal consistency of the primary agreement subscales was examined using Cronbach’s alpha and the mean inter-item correlations. Descriptive statistics (M , SD) for the primary agreement subscales were examined.

One-Month Test-Retest Reliability.

A small sub-sample of mothers (N = 38) who participated in the larger study also completed the NVS one month after completing the baseline measure (76% of those approached to complete the one-month follow-up). Test-retest reliability was examined using Pearson's product moment correlations.

Comparison of Mothers' Primary Agreement Scores across Subscales.

Repeated measures ANOVAS with Bonferroni corrections applied to post-hoc comparisons among means were used to examine differences among mothers' primary agreement subscale scores.

Association of NVS Primary Agreement Subscale Scores with Children's Night-waking.

The correlation of the primary agreement subscales with parent-reported night-waking was examined using Spearman's rank order correlations. Four items from the Infant Sleep Questionnaire (Morrell, 1999b) adapted for use by parents of preschool-aged children (DiLeo, Lewis, & Taliaferro, 2005) were used to measure: a) the frequency of night-waking per week (i.e., the number of nights children woke per week ["none", "less than once a week", "1 night a week", to "7 nights a week"] multiplied by the number of times each night children woke and needed comforting ["does not wake", "once a night", to "5 or more times per night"]), b) the duration of average night-wakings ("less than 10 minutes", "10 to 20 minutes", "20 to 30 minutes", "30 to 40 minutes", "40 to 50 minutes", "50 to 60 minutes", "1 hour or longer"), and c) how often parents take their child into their own bed or lie with them in response to night-wakings (i.e., co-sleeping "none", "less than once a week", "1 night a week" to "7 nights a week").

Effects of Children's Behavior on Parents' Agreement with Night-waking Strategies.

Vignettes were constructed with variations in type and intensity of child behavior. When grouped according to the level of affect depicted in the vignettes, five of the vignettes represent a high affect event (e.g., child cries or yells), while three represent a low affect event (no affect is described). When grouped according to the type of child behaviour or request represented, three vignettes represent an activity event (e.g., child is playing with the pet cat, child requests a story), three represent a desire for active comfort (e.g., child requests a cuddle, calls crawls into parents' bed), and two represent an instrumental request (e.g., a drink of water). Classification of these vignettes was based on the Children's Night-waking Behaviour Scale (Coulombe, 2010), created as part of the larger study.

Agreement scores, as a function of variations in child affect and behavior ("secondary agreement scores"), were calculated in two ways. First, the eight vignettes were grouped according to whether they represented low (3 vignettes) versus high (5 vignettes) child affect. This resulted in two sets of scores for parents' agreement with each of the four night-waking strategies: one set for high affect vignettes and one set for low affect vignettes. Thus for each parent, eight "secondary agreement" subscale scores were calculated: agreement with limit-setting in high child affect vignettes, agreement with limit-setting in low affect vignettes, agreement with active comforting in high child affect vignettes, agreement with active comforting in low affect vignettes, agreement with reward in high child affect vignettes, agreement with reward in low child affect vignettes, agreement with punishment in high child affect vignettes, and agreement with

punishment in low child affect vignettes. Second, the eight vignettes were grouped according to the type of request or event depicted: activity (3 vignettes), comfort (3 vignettes), and instrumental requests (2 vignettes). This resulted in twelve secondary agreement scores (4 strategies x 3 conditions): agreement with limit-setting in activity vignettes, comfort vignettes, and instrumental vignettes; agreement with active comforting in activity vignettes, comfort vignettes, and instrumental vignettes; agreement with rewards in activity vignettes, comfort vignettes, and instrumental vignettes and agreement with punishment in activity vignettes, comfort vignettes, and instrumental vignettes. All secondary agreement subscale scores were the mean of the items in that subscale. For example, agreement with limit-setting in high child affect vignettes was the average of the five limit-setting items in the five high affect vignettes.

To test the influence of child affect and behavior on parental agreement with night-waking strategies, two sets of four repeated-measures ANOVAs were conducted. First, four repeated-measures ANOVAs (1 per strategy) were conducted to examine differences between parents' agreement with each strategy under conditions of high versus low affect. For example, parents' agreement with limit-setting in high affect vignettes was compared with their agreement with limit-setting in low affect vignettes and parents' agreement with active comforting in high affect vignettes was compared with their agreement with active comforting in low affect vignettes.

Second, four repeated-measures ANOVAs (1 per strategy) were conducted to examine differences among parents' agreement with each strategy across types of night-waking events and requests. For example, parents' agreement with limit-setting in activity vignettes was compared with their agreement with limit-setting in comfort

vignettes and with their scores on the agreement with limit-setting in instrumental vignettes. Post-hoc tests of means were adjusted for multiple comparisons using Bonferroni corrections.

Results

Description of the NVS Primary Agreement Subscales

The final NVS presented in this report consists of eight vignettes and 32 items (Appendix A). Item means, item-total correlations, and the correlation of items with other agreement subscales, for the final NVS items only, are presented in Table 3.1. Mothers' scores (means, standard deviations) on the NVS primary agreement subscales, internal consistency statistics (Cronbach's alpha statistics, mean inter-item correlations), and correlations among subscales are presented in Table 3.2. The internal consistency of the primary agreement subscales was adequate to good ($\alpha = .71$ to $.90$; mean inter-item correlations = $.26$ to $.55$). Although the item-total correlation for the "Ignore his outburst and remind him that it is time to sleep" is low ($r = .18$) compared to the other items ($r = > .40$) this vignette was retained in order to preserve the range of demandingness (i.e., high vs. low affect, types of requests) in the overall measure and in the secondary agreement subscales (described below). Subscales were significantly inter-correlated (Table 3.2). The largest correlation was between limit-setting and active comforting ($r = -.57$, $p < .01$).

One-month Test-Retest Reliability of the Primary Agreement Subscales

One month test-retest reliability of the NVS agreement with limit-setting and agreement with active comforting subscales was relatively low ($r = .60$, $r = .66$, $p < .001$; respectively). One month test-retest reliability of the NVS agreement with rewards and

Table 3.1

NVS subscale item means, standard deviations, and corrected item-total correlations

Agreement subscale/item	<i>M</i>	<i>SD</i>	Item- total <i>r</i>
Limit-setting (Ls)			
Not bring him a drink ^{a,c}	3.3	1.7	.40
Resist his request and ignore his behaviour ^{b,c}	3.2	1.6	.52
Walk him back to his room and ignore the rest of his behaviour ^{b,d}	4.3	1.3	.42
Ignore his outburst and remind him that it is time to sleep ^{b,d}	4.6	1.3	.18
Ignore his request for a story ^{a,d}	3.8	1.5	.46
Not go to him ^{a,e}	2.6	1.3	.57
Walk him back to his room and leave before Ryan falls asleep ^{b,e}	4.1	1.4	.73
Resist his request for a cuddle ^{b,e}	3.1	1.5	.68
Active comforting (Ac)			
Bring him a drink ^{a,c}	3.4	1.6	.44

Give him a drink and help Joshua calm down ^{b,c}	3.4	1.5	.59
Offer to lie down with him if he'll return to his room ^{b,d}	2.5	1.5	.54
Stay with him until he falls asleep ^{b,d}	2.2	1.3	.54
Tell him a quick story that is not very interesting ^{a,d}	2.0	1.2	.32
Go to him if he seems to be getting upset ^{a,e}	4.7	1.2	.43
Allow Ryan to stay or offer to stay with Ryan in his room ^{b,e}	3.3	1.6	.59
Comfort him before he gets too upset ^{b,e}	3.8	1.3	.53

Reward (Re)

Let him know that if he doesn't call out for a drink during the night, the "sticker fairy" will leave a surprise under his pillow in the morning ^{a,c}	3.0	1.7	.74
Come up with a system to reward Joshua for better behaviour at night (e.g., staying in his bed, not yelling) ^{b,c}	3.5	1.6	.74
Tell him that if he stays in his room for the rest of night, he and Felix can both have a special breakfast in the morning ^{b,d}	3.8	1.7	.64
Tell Nicholas that if he doesn't play with his teddy bears at night, he will get a treat in the	2.3	1.4	.72

morning^{b,d}

Provide a reward when Liam does not call out for a story (e.g., something special the next

2.9 1.6 .82

morning)^{a,d}

Start giving Matthew rewards in the morning for being quiet at night^{a,c}

2.9 1.5 .76

Come up with a reward system that will encourage Ryan to stay in his room (e.g., if Ryan stays

3.9 1.6 .74

in his room all night, he can have an extra cuddle in the morning)^{b,e}

Make sure that she praises Logan the next morning whenever Logan makes it through the night

4.8 1.5 .48

without calling for another cuddle^{b,e}

Punishment (Pu)

Discipline him for continuing to call out for a drink^{a,c}

1.7 1.0 .57

Scold him for his bad behaviour^{b,c}

2.5 1.5 .54

Discipline him for refusing to return to his room (e.g., take away a toy or privilege, scold him)

2.1 1.3 .48

^{b,d}

Warn him that he will lose his teddy bears for the night if he continues telling stories to them^{b,d}

2.6 1.7 .46

Tell Liam that if he continues to call for a story during the night, he won't get a bedtime story

2.8 1.7 .43

the next night ^{a,d}

Come up with a system where Matthew loses a point every time he calls out; if he loses too many points then he'll lose a privilege ^{a,e}	2.6	1.5	.44
Scold Ryan for refusing to sleep on his own ^{b,e}	1.5	.8	.50
Discipline him for yelling at his mother ^{b,e}	2.7	1.5	.51

Note: Vignettes and items are customized to match the gender of and age of the respondents' child and the gender of the respondent.

The items presented are for a male child and female parent. Following the vignette and before the items, the sentence stem:

“[hypothetical child's name]'s mother should....”. Item scores can range from 1 “strongly disagree” to 6 “strongly agree”.

Item-total r = Person correlation of item with average of remainder of the items in subscale.

^a item is from a low affect vignette ^b item is from a high affect vignette ^c item is from an instrumental vignette

^d item is from an activity vignette ^e item is from a comfort vignette.

Table 3. 2

NVS subscale means, standard deviations, internal consistency statistics, and correlations with primary agreement subscales

Agreement subscale	Internal consistency				Correlations with primary subscales			
	<i>Mean (SD)</i>	Min/ Max	α	<i>M inter-</i> <i>item r</i>	Ls	Ac	Re	Pu
Primary agreement subscales								
Limit-setting (Ls)	3.6 (.9) ^{a,b}	1.0/5.8	.74	.26	1.00	-.57**	.09	.22**
Active comforting (Ac)	3.2 (.9) ^b	1.0/5.2	.79	.32	-.57*	1.00	.01	-.24**
Reward (Re)	3.4 (1.2) ^b	1.0/6.0	.91	.55	.09	-.01	1.00	.35**
Punishment (Pu)	2.3 (.9)	1.0/4.4	.77	.32	.24**	-.25**	.35**	1.00
Secondary agreement subscales								
Limit-setting (Ls)								
High affect	3.8 (.9) ^c	1.0/6.0	.62	.25	.92**	-.49**	.03	.18*
Low affect	3.2 (1.1)	1.0/5.7	.57	.32	.85**	-.54**	.14*	.23**
Comfort vignettes	3.2 (1.1)	1.0/5.7	.70	.44	.83**	-.53**	.12	.33**

Instrumental vignettes	3.2 (1.4)	1.0/6.0	.58	.41	.74**	-.51**	.04	.20**
Activity vignettes	4.2 (1.0) ^{e,f}	1.0/6.0	.52	.26	.74**	-.28**	.03	-.02
<hr/>								
Active comforting (Ac)								
High affect	3.0 (1.0)	1.0/5.6	.76	.40	-.52**	.96**	.02	-.23**
Low affect	3.4 (.9) ^d	1.0/5.3	.36	.15	-.52**	.82**	-.02	-.20**
Comfort vignettes	4.0 (1.0) ^{e,g}	1.0/6.0	.65	.39	-.53**	.84**	-.05	-.28**
Instrumental vignettes	3.4 (1.4) ^g	1.0/6.0	.75	.60	-.48**	.74**	.01	-.24**
Activity vignettes	2.3 (1.1)	1.0/5.3	.70	.43	-.34**	.76**	.06	-.06
<hr/>								
Reward (Re)								
High affect	3.7 (1.2) ^c	1.0/6.0	.82	.49	.09	.01	.97**	.35**
Low affect	2.9 (1.4)	1.0/6.0	.86	.67	.08	.00	.94**	.33**
Comfort vignettes	3.8 (1.2) ^g	1.0/6.0	.75	.50	.20*	-.08	.91**	.41**
Instrumental vignettes	3.3 (1.4) ^g	1.0/6.0	.73	.58	.09	-.00	.91**	.29**
Activity vignettes	3.0 (1.3)	1.0/6.0	.80	.57	-.04	.10	.93**	.27**
<hr/>								

Punishment (Pu)								
High affect	2.3 (.9)	1.0/4.7	.70	.34	.16*	-.18*	.25**	.94**
Low affect	2.4 (1.0)	1.0/4.6	.53	.30	.26**	-.28**	.43**	.85**
Comfort vignettes	2.2 (.9)	1.0/4.3	.47	.26	.22**	-.25**	.36**	.88**
Instrumental vignettes	2.1 (1.0) ^f	1.0/5.0	.46	.33	.21**	-.26**	.16*	.82**
Activity vignettes	2.5 (1.1) ^{e,f}	1.0/5.0	.52	.26	.16*	-.14*	.34**	.87**

Note: Primary agreement subscales (limit-setting, active comforting, reward, punishment) contain 8 items. High affect subscales contain 5 items. Low affect subscales contain 3 items. Comfort subscales contain 3 items. Instrumental subscales contain 2 items. Activity subscales contain 3 items. As subscale scores were the mean of the items in that subscale, all scores could range from a maximum of 1 “strongly disagree” to 6 “strongly agree”.

^a significantly higher than agreement with active comforting ^b significantly higher than agreement with punishment

^c significantly higher than score for low affect vignettes ^d significantly higher than score for high affect vignettes

^e significantly higher than score for instrumental vignettes ^f significantly higher than score for comfort vignettes ^g significantly higher than score for activity vignettes

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

agreement with punishment subscales was acceptable ($r = .74$, $r = .75$, $p < .001$; respectively).

Comparison of Mothers' Primary Agreement Scores across Subscales

Repeated measures ANOVAS revealed statistically significant differences among mothers' agreement scores ($F [3, 202] = 70.42$, $p < .001$). Mothers endorsed significantly greater agreement with limit-setting (i.e., $M = 3.6$ which is closest to "somewhat agree" on the 5-point Likert scale) than with active comforting (~ "somewhat disagree") and punishment (~ "mostly disagree"); significantly greater agreement with rewards (~ "somewhat disagree") than with punishment; and significantly greater agreement with active comforting than with punishment (Table 3.2).

Association of NVS Primary Agreement Subscale Scores with Children's Night-waking

Correlations between the NVS primary agreement subscales and children's night-waking are presented in Table 3.3. As predicted, agreement with limit-setting was negatively correlated with the frequency and duration of night-waking and co-sleeping. Agreement with active comforting was positively associated with the frequency, but not duration of night-waking, and with co-sleeping. Agreement with rewards was not significantly correlated with any of the night-waking variables. Agreement with punishment was significantly correlated only with the frequency of night-waking.

Table 3.3

NVS primary agreement subscale correlations with children's night-waking

	Infant Sleep Questionnaire (ISQ) ¹		
	Frequency	Duration	Co-sleeping
NVS agreement			
Limit-setting	-.20*	-.22*	-.25*
Active comforting	.30**	.12	.42**
Rewards	-.00	-.08	.06
Punishment	-.18*	-.08	-.12

Note: * $p < 0.01$ (1-tailed) ** $p < 0.01$ (1-tailed).

¹ All ISQ correlations use Spearman's *rho*.

Description and Psychometric Properties of the NVS Secondary Agreement

Subscales

Mothers' scores (M , SD) on the NVS secondary agreement subscales and internal consistency statistics (Cronbach's alpha statistics, mean inter-item correlations) are presented in Table 3.2. Internal consistency for the secondary agreement subscales (e.g., limit-setting in low affect scenarios) was poor to good ($\alpha = .36$ to $.86$; mean inter-item r s = $.15$ to $.67$).

Effects of Child Affect on Mothers' Agreement with Night-waking Strategies

Child affect influenced mothers' agreement with limit-setting ($F [1, 202] = 90.10$, $p < .001$), active comforting ($F [1, 202] = 30.20$, $p < .001$), and reward ($F [1, 202] = 192.33$, $p < .001$), but not punishment ($F [1, 202] = 1.61$, *n.s.*) strategies. In other words,

mothers' agreement with limit-setting and rewards was significantly higher in high affect than low affect vignettes. In contrast, mothers' agreement with active comforting was significantly higher in low than in high affect vignettes.

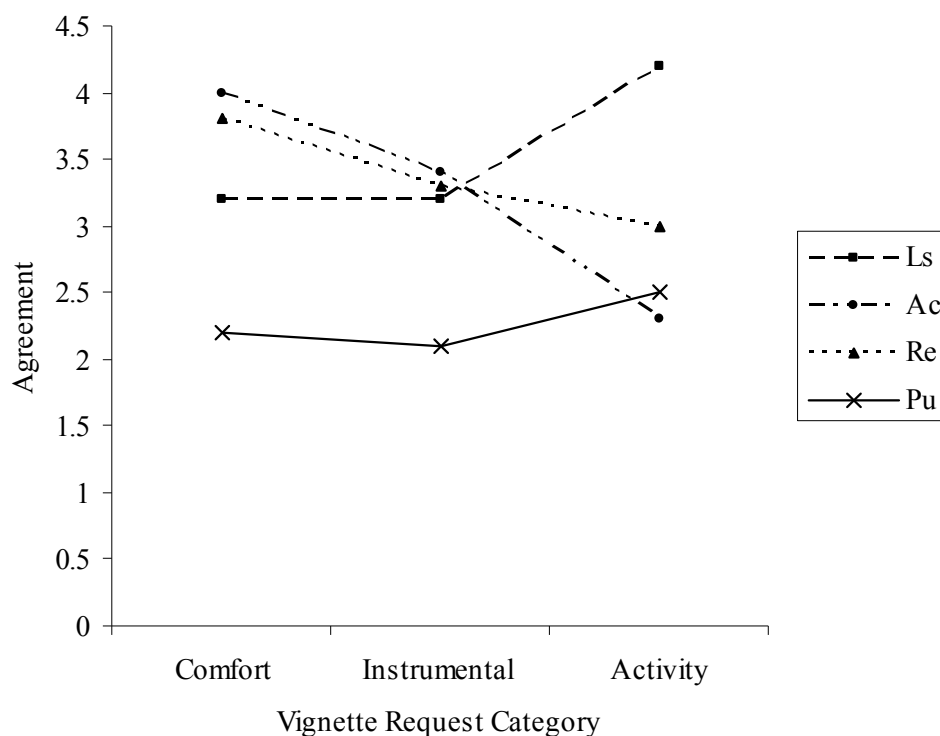
Effects of Child Behaviour on Mothers' Agreement with Night-waking Strategies

The type of children's behaviour depicted in the vignettes also influenced mothers' agreement with limit-setting ($F [2, 202] = 80.25$), active comforting ($F [2, 202] = 177.08$), rewards ($F [2, 202] = 86.73$), and punishment ($F [2, 202] = 26.34$) (all $p < .001$). Mothers' agreement with limit-setting was significantly higher in activity vignettes (e.g., child is playing) than in comfort (e.g., child requests a cuddle) or instrumental (e.g., child requests a drink) vignettes. Mothers' agreement with active comforting was higher in comfort vignettes than in the instrumental or activity vignettes; mothers also agreed significantly more with active comforting in the instrumental vignettes than in the activity vignettes. Mothers' agreement with rewards was significantly higher in instrumental vignettes and comfort vignettes than in activity vignettes. Mothers' agreement with punishment was higher in activity vignettes than in instrumental and comfort vignettes; mothers' agreement with punishment was higher in instrumental vignettes than in comfort vignettes (Figure 3.2).

Discussion

The present study provides preliminary support for the validity of the Night-waking Vignettes Scale, a measure of agreement with four night-waking strategies: Limit-setting, active comforting, rewards, and punishment. The primary agreement subscales demonstrated adequate to good internal consistency. On average, parents reported the greatest agreement with limit-setting and the least agreement with

Figure 3.2. NVS agreement scores according to type of child behaviour. Agreement scores can range from 1 “strongly agree” to 6 “strongly disagree”. Ls = agreement with limit-setting, Ac = agreement with active comforting, Re = agreement with rewards, Pu = agreement with punishment.



punishment. A discussion of the key findings related to each strategy, clinical and research implications, and limitations of the present study follows.

Agreement with Limit-setting

Of the four night-waking strategies examined, limit-setting was the only strategy with which parents, on average, agreed (i.e., ~ “somewhat agree”). This finding is promising for clinicians working with parents from an empirically-supported framework. Effective interventions for night-waking almost exclusively require parents to shift from

active comforting to limit-setting behaviours. This finding implies that general agreement with limit-setting should not present a barrier to treatment for the average family. The extent to which parents are able to translate their agreement with limit-setting into actual limit-setting behaviour, however, is currently unknown.

The negative correlations observed in the present study between parents' agreement with limit-setting and co-sleeping suggests that agreement with limit-setting influences limit-setting use for at least some community parents. The magnitude of this correlation was small ($\rho = -.25$), however, suggesting that agreement with limit-setting, alone, may be an insufficient influence on actual strategy use for most parents. Future research should attempt to identify factors that mediate or moderate relations between agreement with limit-setting and actual limit-setting use. Research conducted with parents of infants suggests that parents' thoughts and affect during actual night-waking episodes may play a role in this relationship (Sadeh et al., 2007). This is consistent with the model of night-waking presented in Figure 3.1, in which parents' agreement with night-waking strategies is one of several proposed influences on parents' night-waking strategy use.

The finding that parents' agreement with limit-setting differed across types of vignettes (i.e., high affect vs. low affect; activity vs. comfort vs. instrumental requests) is also an important area for future research and is also consistent with the model of night-waking presented in Figure 3.1. It is possible that limit-setting is similarly influenced by the night-waking behaviours displayed by children during actual night-waking episodes. This may be a function of their varying agreement with limit-setting in these contexts. In the present study, agreement with limit-setting was most strongly evoked in night-waking

scenarios in which children expressed high affect or displayed behaviours incompatible with sleep (i.e., activity behaviours). Limit-setting in these scenarios would be generally consistent with ignoring tantrums, setting clear boundaries about appropriate night-time (vs. day-time) activities, and promoting independent sleep behaviors. Parents appear to be more ambivalent about limit-setting in other situations, such as requests for comfort or instrumental assistance.

As such, clinicians working with parents to treat night-waking problems should not assume that parents' agreement with limit-setting in general is an indication of agreement with limit-setting in all situations. For example, some parents with whom I have worked have described clear agreement with limit-setting in relation to comforting requests while indicating disagreement with limit-setting in relation to instrumental requests.

Agreement with Active Comforting

On average, mothers disagreed with active comforting. This finding likely reflects the composition of the study sample. Mothers were asked about their beliefs about co-sleeping during the study screening call. A large majority of mothers (~ 90%) indicated that they believed 2- to 5-year-old children should sleep in their own bed. Future studies should include a greater proportion of mothers who co-sleep as part of their parenting beliefs. A stratified sampling procedure should also be in future research in order to examine parents' agreement with night-waking strategies from an epidemiological perspective.

Although agreement with active comforting was low, the correlation between mothers' agreement with active comforting and their use of co-sleeping was moderate

($\rho = .42$). As with agreement with limit-setting, this finding suggests that agreement with active comforting is not the only factor influencing mothers' use of this strategy. Ramos et al. (2007) have demonstrated that two types of parents co-sleep with their children: those who co-sleep intentionally, as an expression of parenting beliefs, and those who co-sleep reactively. Parents who co-sleep reactively do so against their preferences. Given the composition of the present sample, it is likely that the presence of reactive co-sleepers is influencing the magnitude of the observed correlation between agreement with active comforting and co-sleeping. Greater inclusion of intentional co-sleepers would likely result in a stronger correlation between agreement and active comforting. A clustering approach to analyses may be useful in future research.

The finding that mothers agreed more with active comforting when children made active comforting requests makes intuitive sense and may serve as an indication of construct validity. Mothers tended to agree more with providing children with comfort when it was requested (i.e., in comfort vignettes) than when it was not (i.e., activity vignettes). In fact, parents' average agreement with active comforting in comfort vignettes was 4 (~ "somewhat agree"), the only agreement with active comforting score that indicated agreement (vs. disagreement). This finding has implications for clinical practice as, even among a sample of parents who predominantly endorse the belief that children should sleep independently, children's requests for comfort elicited increased agreement that comfort should be provided. This increased agreement with active comforting may make resisting children's comfort requests more difficult and the goal of independent sleep more difficult to obtain.

It is also interesting to note that mothers' agreement with active comforting was lower in high affect vignettes than in low affect vignettes. This finding is contrary to the suggestion that lower adaptability and intensity among some children may make resisting their night-time demands more difficult for parents (Hayes et al., 2001). It may be that this is an area where beliefs and practices diverge. That is, although mothers disagree with providing active comforting in response to heightened affect, they may have significant difficulty resisting these behaviours in practice. Again, the results of the present study suggest that parents' general agreement with a strategy should not be taken to indicate agreement with that strategy across night-waking scenarios. Nor should parents' disagreement with active comforting be taken as an indication that they will be able to refrain from engaging in active comforting.

Agreement with Rewards

On average, mothers somewhat disagreed with rewards. This finding is concerning for clinicians working with parents to reduce night-waking as the use of rewards is often an adjunct to limit-setting interventions. Further investigation of parents' tendency to disagree with rewards is required. In the general parenting literature, verbal praise has been found to be frequently provided to children (endorsed by approximately 2/3 of a general population sample), although tangible rewards were provided much less frequently (Thompson, Raynor, Cornah, Stevenson, & Sonuga-Barke, 2002). The extent to which this represents differences in parents' agreement with rewards versus praise is unknown.

In my clinical experience⁴, I have found that some parents do not believe that young children will understand reward systems, while others are concerned that employing reward systems will send the wrong message to children. Parents concerned about sending the wrong message often express philosophical disagreement with this strategy, saying that children should be intrinsically motivated to behave appropriately. Reward systems can also be difficult to design and implement and parents may have experienced failure in previous attempts. As a result, parents may develop the belief that rewards don't work. It is interesting that parents' agreement with rewards was highest in high affect scenarios. It may be that parents view rewards as something to be offered when the stakes are particularly high, or that the offer of rewards is viewed as a means of regulating children's strong negative affect. Clinicians working with parents should discuss parents' agreement with rewards prior to attempting to implement reward systems.

Agreement with Punishment

Parents' endorsement of agreement with punishment also requires further investigation. Currently, little literature exists in the pediatric sleep literature on this topic, although it may be that parental frustration, fatigue, and difficult child behaviours during the night may place children at risk of coercive parenting. This risk may be higher for parents who present with a baseline of agreement with punishment in response to

⁴ This experience was gained through both clinical practicum placements and through working as a telephone coach on Dr. Reid's randomized controlled trial of a brief intervention for sleep and behaviour problems among 2- to 5-year-old children (Parenting Matters).

children's night-waking. General models of parenting suggest robust associations among parents' beliefs and punitive or coercive parenting behaviour (Bugental, 1992).

Limitations

Although this study is innovative in many ways, including the examination of parents' agreement with multiple night-waking strategies and the effects of varying the characteristics of night-waking episodes on parents' night-waking strategy agreement, the present study has a number of limitations. First, although the NVS has implications for treatment planning and assessment (as described above), the clinical utility of the NVS has not yet been empirically established. The performance of the NVS in a community sample must be replicated and its performance in a clinical population must be examined. These remain areas for future investigation and caution should be taken in incorporating recommendations from this study into clinical practice. The validation sample in the present study was primarily Caucasian, educated, and of reasonable income; parents believed primarily in independent sleep. Findings of the present study may not be generalizable to other groups of parents, and the performance of the NVS among a broader range of parents should be examined. Although I attempted to obtain NVS data from both mothers and fathers, only a small number of fathers returned completed questionnaires. This number was too small to be analyzed separately. It should be noted that differences in mothers' and fathers' cognitions about infant sleep have been found (Sadeh et al., 2007). Fathers' agreement with night-waking strategies requires study and it should not be assumed that the findings of the present study, conducted with mothers of preschool-aged children, will apply to fathers.

The internal consistency of the NVS secondary agreement subscales was variable; the source of this variability is currently unclear. Further, the test-retest coefficients were reasonable but less than ideal. Again, the source of this variability is unclear. Variability may be due to measurement error or to actual changes in parents' agreement scores over a relatively short period. Measurement issues related to children's sleep and night-time parenting are complex (Mindell, 1993; Mindell, Sadeh, Kohyama, & How, 2010; Scher, Epstein, Sadeh, Tirosh, & Lavie, 1992) and measures of young children's sleep and night-time parenting often have lower reliability statistics (e.g., Johnson & McMahon, 2008; Matthey, 2001; Morrell, 1999a). Additional research, possibly using cognitive interviews (Jobe & Mingay, 1989) about parents' NVS responses over time may improve our understanding of these issues. A developmental approach to studying parents' agreement with night-waking strategies would be beneficial. For example, agreement with night-waking strategies at multiple time points could be examined, as could changes in parents' agreement as a result of external factors, such as interventions, or internal factors, such as parenting experience.

Future Directions

The association of NVS subscales to parents' cognitions and affect during night-waking episodes, as well as to their self-reported and observed behaviours was not examined as part of this study. These are areas of potential clinical and research interest and should be explored in subsequent studies. Future investigations should examine the influence of parents' agreement with night-waking strategies on the initiation of, and adherence to, night-waking interventions. In particular, the effects of incompatibility between parents' agreement with night-waking strategies and the night-waking

interventions they are offered should be explored. These effects may be observed at the level of parents' thoughts and affect (e.g., increased distress, doubt), parent behaviour (e.g., inconsistent responding, ineffective responding), or children's night-waking.

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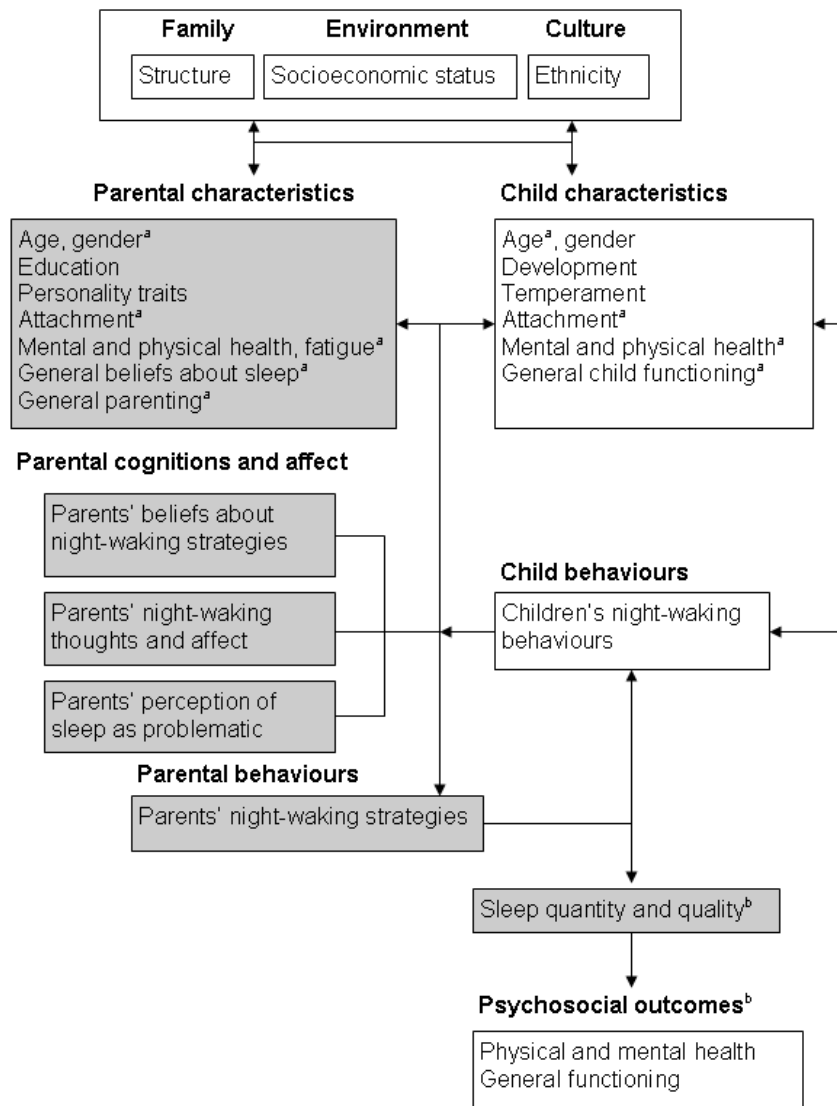
Chapter 4: Preliminary Validation of the Parents' Night-waking Thoughts and Affect Questionnaire

Night-waking is one of the most prevalent behavioural sleep problems (i.e., maintained primarily by behavioural rather than physical factors) among 2-to 5-year-old children (see Hiscock, Canterford, Ukoumunne, & Wake, 2007; National Sleep Foundation [NSF], 2004). Over 30% of preschool-aged children wake at least once per night and signal (cry, call out) for parental assistance (NSF, 2004). Parents' responses to children's wakings (night-waking strategies) play an important role in both the development and treatment of night-waking (e.g., Johnson & McMahon, 2008; Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003; Sadeh, Tikotsky, & Scher, 2010). Few studies have examined factors that influence parents' night-waking strategies.

Influence of Thoughts and Affect on Night-waking Strategy Use

Factors that may influence night-waking strategy use include parents' cognitions (i.e., their thoughts and beliefs) and affect related to night-waking and night-waking strategies (Figure 4.1). Numerous studies have documented small to moderate relations between parents' cognitions and affect and parents' behaviour during the day (Abidin, 1992; Dix, 1991; Kochanska, Kuczynski, & Radke-Yarrow, 1989; Okgaki & Bingham, 2005; Pinderhughes, Dodge, Bates, Petit, & Zelli, 2000; Sigel, McGuillicuddy-DeLisi, & Goodnow, 1992; Simons, Beaman, Conger, & Chao, 1993). A small body of literature suggests that parents' cognitions and affect also influence their behaviour at bedtime (Johnson & McMahon, 2008; Morrell, 1999a; Morrell & Steele, 2003; Sadeh, Flint-Ofir, Tirosh, & Tikotzky, 2007).

Figure 4.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions (i.e., beliefs and thoughts about night-waking and night-waking strategies) and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the model that are not a central focus of the present study are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present study are indicated by a shaded text-box.



In the present manuscript, I distinguish between two types of cognitions about children's night-waking and parents' night-waking strategies (Figure 4.1). The term "beliefs" is used when referring to parents' attitudes and underlying agreement with night-waking strategies and the term "thoughts" is used when referring to those cognitions that occur spontaneously or "in the moment" during actual night-waking episodes (Sadeh et al., 2007). This distinction is important, as a recent study by Sadeh et al., (2007) suggests that parents can hold strong beliefs about a night-waking strategy, but experience thoughts and affect that may interfere with strategy use. Parents of infants with sleep problems endorsed greater agreement with limit-setting in hypothetical vignettes and higher levels of problematic thoughts related to limit-setting during actual night-waking episodes than parents of infants without sleep problems (Sadeh et al., 2007). Limit-setting, a strategy in which parents do not respond to children at night, is included in most evidence-based treatment protocols (Sadeh, 2005).

Among parents of infants, negative thoughts and affect related to limit-setting are associated with self-reported use of active comforting (Morrell & Steele, 2003). Active comforting is a night-waking strategy in which parents cuddle, lie with, or provide some other form of physical comfort to help children return to sleep. Active comforting is associated with problematic infant sleep (Morrell, 1999a; Sadeh et al., 2007). Negative thoughts and affect appear to be associated with active comforting among parents of preschool-aged children. Johnson and McMahon (2008) have recently investigated a model of sleep problems (e.g., bedtime refusal, night-waking) among preschool-aged children that supports significant associations among parental hardiness (i.e., parents' ability to cope with stress and stressors), problematic parental sleep-related thoughts and

affect (e.g., negative thoughts about limit-setting, doubts about parental competence, anger at children's night-time demands), active comforting, and children's sleep. This simple model is an important step in the pediatric literature. However, it does not account for important developmental differences between infants and preschool-aged children, nor does it consider child-level influences on parents' behaviour, such as child behaviour during night-waking episodes (Coulombe, 2010a). The use of measures of parents' sleep strategies and sleep-related thoughts and affect originally designed for parents of infants is a limitation of Johnson and McMahon's (2008) work.

Measurement of Parents' Thoughts and Affect Related to Night-waking

Most previous research in this area has been conducted with parents of infants (e.g., Morrell & Steele, 2003; Sadeh et al., 2007). All previous research in this area, including the Johnson and McMahon (2008) study conducted with parents of preschool-aged children, has used the Maternal Cognitions about Infant Sleep Questionnaire (MCISQ; Morrell, 1999a). In the MCISQ, parents rate 20 sleep-related thoughts on a 5-point scale (strongly agree to strongly disagree). Internal consistency for the full MCISQ in the original validation sample of parents of infants was 0.82 (Cronbach's alpha). However, these statistics were reported for the overall scale and not for the five MCISQ subscales identified using factor analyses: limit-setting, (e.g., "It is all right to let my child cry at night"), anger, (e.g., "When my child cries at night, I think I might lose control and harm him/her"), doubt, (e.g., "If I say no to my child's demands at night, then that means I'm a bad mother"), feeding, (e.g., "My child might go hungry if I don't give him/her a feed at night"), and safety (e.g., "My child might die unexpectedly in his/her sleep") (Morrell, 1999a).

Only one study has examined the use of the MCISQ with parents preschool-aged children ($M_{\text{age of children}} = 3.8$ years; Johnson & McMahon, 2008). Using Principal Components Analysis and starting with an a priori decision to administer only those items from Morrell (1999a)'s limit-setting, anger, and doubt subscales, Johnson and McMahon (2008) observed a single factor 14-item scale. Internal consistency (Cronbach's α) for the shortened 14-item MCISQ with parents of preschool-aged children was 0.72 (Johnson & McMahon, 2008). Mothers' sleep-related cognitions and affect were significantly correlated with maternal hardiness ($r = -.27$), mothers' use of active comforting ($r = .35$), and children's sleep ($r = .39$; Johnson & McMahon, 2008).

Despite adequate psychometric properties and conceptually meaningful relations with children's sleep and maternal variables, it is not clear that the MCISQ, when used with parents of preschool-aged children, captures the range of thoughts and affect that may be experienced by parents during night-waking episodes. For example, the MCISQ items do not reflect parents' concerns about their own sleep loss as a result of their child's night-waking. Several studies and reviews have highlighted considerable variability in whether parents perceive their child's night-waking to be problematic (e.g., Jenni & O'Connor, 2005; Morrell, 1999a; Ramos, Younclarke, & Anderson, 2007), and endorsement of sleep as a "problem" has been partially associated with the effect it has on the sleep of other family members (Wiggs & Stores, 1998). In the pilot work for this study (Coulombe & Reid, 2006), one parent identified herself as a firm proponent of limit-setting because she believes in the importance of sleep. This mother viewed limit-setting as an investment in better sleep over time. In contrast, a second parent reported feeling unable to engage in limit-setting because allowing her child to call out would

disrupt the sleep of her husband. Although she reported that she believed in limit-setting in principle, she could not afford the anticipated costs of limit-setting – her husband's sleep loss – in the short-term. In the adult insomnia literature, problematic cognitions about the effects of inadequate sleep have been associated with poorer sleep and dysfunctional sleep behaviours (Harvey & Grenall, 2004; Morin, Blais, & Savard, 2002; Semler & Harvey, 2004). Problematic thoughts about the effects of children's night-waking on parents' own sleep may similarly result in dysfunctional night-waking strategies.

Another construct not addressed by the MCISQ are positive thoughts and affect that may be experienced during night-waking interactions. Although the literature to date has focussed primarily on the role of negative thoughts and affect on night-time parenting, it is likely that many parents experience at least some aspects of night-waking in a positive manner. For some parents, active comforting may be as inherently reinforcing as responding to their children's needs during the day. For example, Ramos et al. (2007) make a clear distinction between parents who co-sleep with their children intentionally, as an expression of parenting beliefs, and those who co-sleep in reaction to children's sleep problems (see also, Greene & Groves, 2008; McKenna & Volpe, 2007). Intentional co-sleepers view their children's sleep as less problematic than reactive co-sleepers, despite similar levels of waking (Ramos et al., 2007).

Thoughts and affect supportive of limit-setting have received little attention in the research literature and also require consideration. It may be that that parents who are able to engage in limit-setting both agree with limit-setting and experience thoughts and affect supportive of limit-setting during night-waking episodes. Although the results of the

Sadeh et al. (2007) study suggest that negative thoughts and affect can interfere with limit-setting, the role of thoughts and affect in supporting limit-setting has not been directly investigated. Parents who are able to think positively about limit-setting and the importance of limit-setting during night-waking episodes may have greater success in using this strategy effectively. Again, no measure of parents' positive thoughts and affect about limit-setting currently exists for use with parents of preschool-aged children.

Purpose of the Present Study

The purpose of the present study was to develop a parent-rated self-report measure of thoughts and affect related to night-waking among preschool-aged children (the Parents' Night-waking Thoughts and Affect Questionnaire, PNTQ; Appendix A) and to examine its psychometric properties in a community sample. A measure of thoughts and affect about night-waking for use with parents in this age group is currently missing from the literature and is essential for the development and testing of models of night-waking among preschool-aged children. Figure 4.1 presents the model of night-waking and parenting that has guided the development and validation of the PNTQ. This model was influenced by models of infant sleep (e.g., Morrell & Steele, 2003; Sadeh & Anders, 1993) and by models of sleep problems among young children by Johnson and McMahon (2008) and Touchette, Petit, Tremblay, and Montplaisir (2009). It has been adapted from the Touchette et al. (2009) model to include prominent roles for children's behaviour and parents' cognitions and affect in influencing parents' night-waking strategies.

Consistent with the presented model (Figure 4.1), preliminary investigation of the convergent validity of the PNTQ with measures of parents' agreement with night-waking strategies, maternal mental health (depression, anxiety, stress), and parenting stress are

presented. Correlations between PNTQ subscales and the frequency and duration of night-waking, mothers' perceptions of their children's sleep as problematic, and mothers' use of co-sleeping were also examined. It was predicted that the PNTQ would display adequate reliability and convergent validity. It was also predicted that both negative and positive thoughts and affect related to night-waking would be associated with mothers' use of co-sleeping (an active comforting behaviour) and with the frequency and duration of night-waking. I predicted that only negative thoughts and affect related to night-waking would be positively correlated with mother's perceptions of children's sleep as problematic.

Methods

This research was part of a larger project examining night-waking among preschool-aged children. Ethics approval (Appendix B) was provided through the expedited Psychology Research Ethics Board at the University of Western Ontario (UWO). Participants were compensated with \$15 gift cards in recognition of their contribution to this work.

Participants

Parents were recruited via multiple community sources in and around London, Ontario as part of a larger study. Three hundred and thirty-four parents were contacted to participate in this study. The majority of parents ($n = 220$, 67% of those contacted) approached the research team, through electronic mail or by telephone, after seeing a recruitment advertisement placed on an electronic (internet) bulletin board (e.g., kijiji). Other parents were made aware of the study via more traditional recruitment procedures (i.e., in person, at parenting groups, 12%; via letters sent through preschools, 8%; through

an existing database maintained by the Developmental Area of the Department of Psychology at UWO, 13%). A brief telephone screener was completed by 305 parents (91% of those contacted) to assess study eligibility: (a) Parent of a 2-to 5-year-old child who, by parent report, woke up during the night at least once every two weeks in the two months preceding recruitment. At least some night-waking was required, as parents' cognitions and affect are in response to children's night-waking. (b) Comfortable with written and spoken English. Parents were excluded when their child: (a) had a chronic illness or medical condition that could underlie night-waking (e.g., blood glucose testing for diabetes) or (b) regularly slept away from parents' home (e.g., at another parent's home one or more nights a week). Parents not involved in child's sleep (e.g., parent works night- shifts, babysitter stays overnight) were excluded as participating parents were required to reliably report on child's sleep during the study period. Two hundred and ninety-six parents (87% of those contacted, 97% of those who completed screeners) were eligible for this study and were mailed a questionnaire package that included a pilot version of the PNTQ (Appendix C) and the measures described below.

Completed questionnaires were received from 203 mothers (68% response rate). Most mothers ($M_{\text{age}} = 32.4$ years, $SD = 5.1$) were Caucasian (90%, $n = 182$) and had earned at least one college/trade diploma or university degree (69%, $n = 141$). Approximately 23% ($n = 46$) of families had an income of less than \$40,000 and approximately 18% ($n = 36$) had an income of \$100,000 or greater. Children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$; 48% male) were required to be healthy (i.e., not have any chronic illnesses that could be related to night-waking) and to have woken a minimum of one night every two weeks in the month prior to recruitment. None of the children in this

study had been previously diagnosed with a sleep disorder; 6% had taken a medication in the past to help with sleep (generally when sick or unwell). The majority of mothers ($n = 104$, 51%) indicated that they thought their child had a mild sleep problem, 23% ($n = 46$) a moderate, and 5% ($n = 10$) a severe sleep problem; 21% ($n = 43$) did not think their child had a sleep problem. Most mothers ($n = 184$, 90%) indicated that they believed that children should sleep in their own bed or crib in their own bedroom.

Part 1: Preliminary Item Analyses, Factor Structure, and Internal Consistency of the PNTQ

Measures

Parents' Night-waking Thoughts and Affect Questionnaire.

A list of 51 parental thoughts (Appendix D; i.e., thoughts that occur to parents during night-waking interactions with their children) and emotions (“affect”; e.g., anger, doubt, confusion) that could be associated with night-waking in young children was compiled from a variety of sources including: the MCISQ (1999a); pilot interviews with 10 mothers of preschool-aged children who wake during the night; clinical experience; review of the academic, pediatric sleep, and parenting literatures (e.g., Abidin, 1992; Dix, 1991; Morrell, 1999a); review of the adult insomnia literature (e.g., Morin et al., 2002); and review of popular parenting and sleep literatures and websites. Data from the pilot interviews were used to identify themes and constructs relevant to night-waking among preschool-aged children and to the experience of parenting a preschool-aged child who wakes at night (Coulombe & Reid, 2006). The themes were further examined, verified, and expanded upon using the other research sources (e.g., literature review, clinical experience). Items were written to reflect these themes.

Potential PNTQ items were written to be at a grade 8 level or below (Grammatik; Reference Software International, 1999). Five graduate students rated the initial pool of items from 1 (“not clear at all”) to 5 (“completely clear”). Any item with an average score of less than 4 was re-written.

A separate group of 20 graduate and undergraduate students assisted with assessing the preliminary content validity of the 51 PNTQ items. At this stage in development, PNTQ items were hypothesized to represent five constructs: (a) Doubts about competence (“doubts”; parent experiences doubt/uncertainty as to whether their parenting was/is adequate, how to respond to their child’s requests, and whether they are able to engage in limit-setting strategies successfully), (b) concerns about the effects of inadequate sleep (“sleep concerns”; parent is concerned that if the child does not go to sleep quickly, the child’s sleep, parent’s sleep, or family sleep and next day functioning will be negatively impacted), (c) positive thoughts about limit-setting (“positive thoughts about limit-setting”; parents’ positive endorsement of limit-setting as an approach to helping their child learn to sleep independently), (d) anger (“anger”; feelings/thoughts that reflect anger, resentment, helplessness and/or a negative view of the child, child’s demands and parenting situation), and (e) concerns about limit-setting (“concerns about limit-setting”; parents’ worries or fears related to the effects of limit-setting on their child and/or their relationship with their child).

Students rated the consistency (1 [“completely inconsistent”] to 5 [“completely consistent”]) of all potential PNTQ items with the definitions of each construct (Appendix D). Students’ ratings for each item were compared across dimensions using repeated measures analysis of variance (Hinkin & Tracey, 1999). Items that did not score

significantly higher on their intended construct than on other constructs and items that did not score higher than 4 were discarded. The 40 items (~ 8 items per construct) with the highest mean scores on their intended construct were selected for the pilot version of the PNTQ.

Instructions and a 9-point ratio-based rating scale (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”) rating scale, were added. Eight experts in pediatric sleep and five parents (1 father, 4 mothers) reviewed the pilot version of the 40 item PNTQ (Appendix D) and provided feedback. No items were discarded and little refinement was required. As a result of expert feedback, eight items were created to measure the positive or reinforcing aspects of night-waking for parents (“positive thoughts about active comforting”; e.g., “Enjoying the opportunity to spend extra time with him”). Thus, the PNTQ completed by the final validation sample of 203 mothers consisted of 48 items hypothesized to measure six constructs related to night-waking: doubts, sleep concerns, positive thoughts about limit-setting, anger, concerns about limit-setting, positive thoughts about active comforting (Appendix C).

Analyses

Preliminary Analyses of PNTQ Items.

Preliminary item analyses were conducted to examine the endorsement frequencies, distribution, means and standard deviation of the PNTQ items. Items were grouped according their hypothesized subscales. Hypothesized subscale scores were calculated by computing the mean of the items written for that subscale. Inter-item correlations, item-total correlations, the correlations of each item with the other hypothesized subscales (i.e., the constructs that item was not intended to represent), and

the correlations among hypothesized subscales were examined. The subscale items with the highest inter-item correlations and item-total correlations and the lowest correlations with other hypothesized subscales were selected to proceed to factor analyses.

Analyses of PNTQ Factor Structure.

EQS version 6.1 was used to conduct Maximum Likelihood Estimation Confirmatory factor analyses (CFA), testing the fit of the data to the hypothesized PNTQ factor structure. Goodness of fit statistics (χ^2 , Comparative Fit Index [CFI], Root Mean Square Error of Approximation [RMSEA] with 90% confidence intervals; Byrne 2006) were examined. Criteria for an acceptable fit for CFI was $> .80$, although a CFI of $> .90$ or $.95$ would be preferable (Byrne, 2006). The RMSEA criterion for an acceptable fit was $.00 - .08$; although a preferred criterion would be $.00 - .05$ (in Byrne, 2006).

Description and Performance of the PNTQ Subscales.

Cronbach's alpha and mean inter-item correlations were used to evaluate the internal consistency of the PNTQ subscales. Missing PNTQ items ($< 5\%$ of responses to items were missing) were imputed with the sample mean for that item. PNTQ subscale scores were the mean of all subscale items and could thus range from a minimum of 1 to a maximum of 9. Correlations among subscales were examined using Pearson correlations.

Analysis of One-Month Test-retest Reliability.

A small subsample ($N = 38$; 76% of those approached) of mothers completed the PNTQ one month after completing the measure at baseline. Test-retest reliability of the PNTQ subscales was examined using Pearson correlations.

Results

Preliminary Analyses of PNTQ Items.

No items had single response options at either the high (i.e., greater than 3/4 of the time) or low (i.e., less than 1/4 of the time) end of the rating scale endorsed by >85% of participants. Thus, no items were removed because of ceiling or floor effects. The item means and standard deviations, *for the final PNTQ items only*, are presented in Table 4.1. Examination of the inter-item correlations within each hypothesized subscale (doubts, mean inter-item $r = .35$; sleep concerns, mean inter-item $r = .34$; anger, mean inter-item $r = .54$; positive thoughts about limit-setting, mean inter-item $r = .27$; concerns about limit-setting, mean inter-item $r = .37$; positive thoughts about active comforting, mean inter-item $r = .53$) and item-total correlations (doubts, mean item-total $r = .54$; sleep concerns, mean item-total $r = .50$; anger, mean item-total $r = .68$; positive thoughts about limit-setting, mean item-total $r = .43$; concerns about limit-setting, mean item-total $r = .56$; positive thoughts about limit-setting, mean item-total $r = .69$) provided encouraging evidence that the items measured their intended constructs. However, only 12 PNTQ items (primarily positive thoughts about limit-setting and positive thoughts about active comforting items) with moderate to high item-total correlations also had low correlations with other hypothesized subscales. The remaining items displayed moderate to high correlations with other hypothesized subscales.

Sleep concern, anger, and doubt items tended to co-vary significantly (mean inter-item $r = .34$), appearing to represent a broader construct: “Negative affect”. This pattern of correlations suggested that the PNTQ items did not measure six distinct constructs, as proposed. A negative affect score was calculated (the mean of nine concern, anger, and doubt items) and the above sets of correlations (inter-item, item-total, and items with

Table 4.1

Final PNTQ items, item means and standard deviations, and factor loadings

Item	<i>M</i>	<i>SD</i>	Loading
Positive thoughts about limit-setting			
If I ignore his requests now, he'll learn to sleep independently in the future	3.4	2.2	.51
It's okay to ignore his request	3.3	2.2	.64
If I don't respond to him, eventually he'll go back to sleep	2.9	1.9	.78
Feeling confident that I am able to resist his request	2.8	2.2	.49
Concerns about limit-setting			
If I don't respond to him at all, it may cause him lasting emotional harm	3.5	2.7	.87
He will feel abandoned if I don't respond to him	4.3	3.0	.80
If I resist his request, it may cause him lasting emotional harm	2.9	2.6	.85
Refusing his request is not worth the distress it may cause him	4.6	2.7	.52
Negative affect			
He is very frustrating	3.5	2.4	.80
Wishing he wasn't so demanding	3.5	2.7	.75
Resenting his demands on me	2.0	1.9	.76
Feeling angry	2.2	1.9	.74
Feeling helpless	3.2	2.5	.72

Feeling confused about the right way to respond to him	3.7	2.5	.64
I may never get a good night's sleep again	5.2	3.1	.50
If I don't get him to settle quickly, I will be too tired to function the next day	5.1	3.0	.50
Giving him what he wants is the only way for my family to get any rest	3.8	2.8	.64
<hr/>			
Positive thoughts about active comforting			
I'll be sad when he's too old to seek my comfort at night	2.9	2.6	.63
He needs me and I am glad that I can provide him comfort	5.3	2.7	.73
The time we spend together during the night is important	3.2	2.6	.77
I'm glad he needs me	4.0	2.9	.76
Enjoying the opportunity to spend extra time with him	3.1	2.5	.81

Note: PNTQ instructions asked parents to read each thought and indicate how frequently, if at all, the thought crossed their mind when their child woke during the night and made a request. A 9-point ratio-based rating scale was used, with anchors at every other response option (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”).

other subscales) were re-analyzed. These analyses suggested a four-factor structure for the PNTQ: (a) positive thoughts about limit-setting, (b) concerns about limit-setting, (c) positive thoughts about active comforting, and (d) negative affect.

PNTQ Factor Structure.

Two CFAs were conducted: a) a CFA testing the original six-factor model (Model 1) and b) a CFA testing the revised four-factor model (Model 2). Mardia's normalized estimate of multivariate non-normality was 14.96 for Model 1 and 12.57 for Model 2, suggesting considerable deviation from normality (Byrne, 2006). Thus, robust statistics were examined in determining the fit of each model to the data.

The CFA testing the original six-factor model (Model 1) did not support the fit of the hypothesized model to the data (Satorra-Bentler $\chi^2 = 629.20$, $df = 309$, $p < .001$; robust CFI = .84; robust RMSEA = .08 (90% C.I. = .07, .08) as well as the CFA testing the revised four-factor model (Model 2). The CFA testing the revised four-factor model (Model 2) indicated an acceptable fit to the data (Satorra-Bentler $\chi^2 = 352.90$, $df = 203$, $p < .001$; robust CFI = .90; robust RMSEA = .06 (90% C.I. = .05, .07). The CFA testing the revised four-factor model was also a more parsimonious solution. Item factor loadings and descriptive statistics for the four PNTQ subscales are presented in Table 4.1.

Description of the PNTQ Subscales.

The internal consistency for three of the four PNTQ subscales (positive thoughts about active comfort, concerns about limit-setting, negative affect) was good. Internal consistency for the positive thoughts about limit-setting was adequate, particularly given the short length of this subscale. These statistics are presented in Table 4.2, as are PNTQ subscale mean scores and standard deviations and correlations among PNTQ subscales. On average, mothers endorsed experiencing positive thoughts about limit-setting

Table 4.2

PNTQ subscale means and standard deviations and correlations among PNTQ subscales

PNTQ subscale	<i>M</i>	<i>SD</i>	α	Mean inter- item <i>r</i>	Test- retest <i>r</i>	PLs	CLs	Na
Positive thoughts about limit-setting (PLs)	3.1	1.5	.68	.35	.46**	1.0		
Concerns about limit-setting (CLs)	3.8	2.2	.84	.56	.52**	-.27**	1.0	
Negative affect (Na)	3.6	1.8	.87	.45	.88**	.12	.27**	1.0
Positive thoughts about active comforting (PAc)	3.8	2.1	.85	.54	.89**	-.20**	.33**	-.17*

Note: PNTQ subscale scores were the mean of subscale items; subscales scores could range from a minimum of 1 to a maximum of 9 (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”). * $p < .05$, two-tailed. ** $p < .01$, two-tailed.

approximately 1/4 of the time during night-waking interactions with their children. They endorsed experiencing concerns about limit-setting, negative affect, and positive thoughts about active comforting between 1/4 and 1/2 of the time.

Test-Retest Reliability.

One-month test-retest reliability of the PNTQ positive thoughts about limit-setting and PNTQ concerns about limit-setting subscales was moderate. Conversely, one month test-retest reliability of the PNTQ positive thoughts about active comforting and PNTQ negative affect subscales was high (Table 4.2).

Part 2: Convergent Validity of the PNTQ

Measures

Table 4.3 presents the means, standard deviations, and internal consistency statistics for the measures used to examine the convergent validity of the PNTQ subscales. For all convergent validity measures, missing items were computed using the sample mean for that item. Less than 5% of the data were missing for any item. Mothers' scores on the convergent validity measures were always calculated as the mean of the items in that measure (when total scores were used) or subscale (when subscale scores were used). The maximum possible score is also presented in Table 4.3 to assist with interpretation of these scores.

Night-waking Vignettes Scale (NVS).

The Night-waking Vignettes Scale (NVS; Coulombe, 2010b) is a measure of parents' agreement with night-waking strategies, containing eight vignettes depicting short night-waking scenarios. Following each vignette is the sentence stem: "[child's name]'s mother should...." and a list of parental behaviours. Mothers rated their

Table 4.3

Means, standard deviations, maximum possible score, and internal consistency of convergent validity measures

	<i>M</i>	<i>SD</i>	Max score	α
Night-waking Vignettes Scale (NVS)				
Agreement with limit-setting	3.6	.9	6	.74
Agreement with active comforting	3.2	.9	6	.79
Depression Anxiety Stress Scale-21 total score	1.5	.3	4	.81
Dysfunctional Beliefs and Attitude about Sleep Scale-10 (DBAS-10)	3.4	.8	5	.78
Parental Stress Scale (PSS)				
Stressors	2.4	.7	5	.74
Rewards	4.1	.3	5	.83
Parenting Stress Index (PSI)				
Distress	2.2	.8	5	.88
Negative parent-child interaction	1.3	.4	5	.80

Note: Mothers' scores on the convergent validity measures were always calculated as the mean of the items in that measure (when total scores were used) or subscale (when subscale scores were used).

agreement with each behavior on a 6-point scale (1 = “strongly disagree” to 6 = “strongly agree”). For the present study, NVS agreement with limit-setting and agreement with active comforting scores were used. Higher scores reflect greater agreement.

Depression Anxiety Stress Scale- Short Form (DASS-21).

The DASS-21 (Lovibond & Lovibond, 1995) is a measure of psychological adjustment. It has established reliability and validity in non-clinical adult samples (Henry & Crawford, 2005). Mothers rated DASS-21 items on a 4-point scale from 1 (“not at all”) to 4 (“most of the time”). Higher scores indicate greater symptoms of anxiety, depression, and stress and poorer overall mental health.

Dysfunctional Attitudes and Beliefs about Sleep- Short Form (DBAS-10).

The DBAS-10 is a short form version of the Dysfunctional Attitudes and Beliefs about Sleep Scale (Morin, 1994), a measure of dysfunctional sleep-related cognitions. The consequences of insomnia items of the DBAS-10 (Edinger & Wohlgemuth, 2001; Espie, Inglis, Harvey, & Tessier, 2000) were used to measure mothers’ beliefs about the immediate negative consequences of inadequate sleep. Mothers rated DBAS-10 items on a 5-point scale from 1 (“strongly disagree”) to 5 (“strongly agree”). Higher scores indicate more dysfunctional beliefs about the immediate effects of inadequate sleep.

Parental Stress Scale (PSS).

The PSS (Berry & Jones, 1995) is a measure of parental stress, demonstrating high reliability and good construct validity in its original validation sample. The stressors and rewards subscales of the PSS were used to measure mothers’ perceptions of their children as sources of stress and reward, respectively. Mothers rated PSS items on a 5-

point scale from 1 (“strongly disagree”) to 5 (“strongly agree”). Higher scores indicate greater parenting stress and greater parenting rewards.

Parenting Stress Index (PSI).

The short-form of the PSI (PSI-SF; Abidin, 1995) is a widely used measure of parenting stress, moderately correlated with the PSS (Berry & Jones, 1995). The PSI-SF has demonstrated reliability and validity, as demonstrated through significant associations between PSI-SF subscales and measures of parent psychopathology and observed parent-child interactions (Haskett, Ahern, Ward, & Allaire, 2006). The parental distress and negative parent-child interaction items of the PSI-SF were used to measure mothers’ perceptions of distress related to parenting and mothers’ perceptions of problematic interactions with their children. Mothers rated PSI items on a 5-point scale from 1 (“strongly disagree”) to 5 (“strongly agree”).

Analyses

Bivariate correlations (Pearson coefficients, r) were conducted to examine the convergent validity of the PNTQ with mothers’ agreement with night-waking strategies and existing measures of mothers’ general mental health, problematic cognitions associated with insomnia (sleep-specific cognitions), and parenting stress. Due to the number of comparisons, probability (p) values $< .01$ were considered statistically significant, while probability values between $.05$ and $.01$ were considered trends in the data. As hypotheses had specific predictions about the direction of association between PNTQ subscales and other variables, one-tailed tests of significance were used.

Hypotheses.

It was predicted that: a) *Positive thoughts about limit-setting* would be positively correlated with agreement with limit-setting (NVS) and negatively correlated with agreement with active comforting (NVS). b) *Concerns about limit-setting* would be negatively correlated with agreement with limit-setting (NVS) and positively correlated with agreement with active comforting (NVS), DASS-21, and parenting distress (PSI) scores. c) *Negative affect* would be positively correlated with agreement with limit-setting (NVS), DASS-21, DBAS-10 consequences, parenting stressors (PSS), parenting distress (PSI) and negative parent-child interactions (PSI) and negatively correlated with agreement with active comforting (NVS) and parenting rewards (PSS) scores. d) *Positive thoughts about active comforting* would be negatively correlated with agreement with limit-setting (NVS) and positively correlated with agreement with active comforting (NVS) and parental rewards (PSS) scores.

Results

Correlations between PNTQ subscales and NVS scores (agreement with limit-setting or active comforting in hypothetical vignettes), maternal mental health (DASS-21 total scores), sleep-specific cognitions (DBAS-10 consequences scores), and parenting stress (PSS, PSI scores) are presented in Table 4.4.

As predicted, greater endorsement of *positive thoughts about limit-setting* was associated with greater agreement with limit-setting and less agreement with active comforting. Conversely, greater endorsement of *concerns about limit-setting* was associated with lower agreement with limit-setting and greater agreement with active comforting. *Concerns about limit-setting* were also positively correlated with poorer maternal mental health (DASS-21 total scores) and parenting distress (PSI).

Table 4.4

Correlations Between PNTQ Subscales, NVS Subscales, Maternal Mental Health, Parenting Stress, Sleep-specific Cognitions, and Night-waking Variables

	Parental Night-waking Thoughts and Affect Questionnaire (PNTQ) Subscales			
	Positive thoughts about limit-setting	Concerns about limit- setting	Negative affect	Positive thoughts about active comforting
Night-waking Vignettes Scale (NVS)				
Agreement with limit-setting	.53***	-.33***	.18**	-.40***
Agreement with active comforting	-.34***	.32***	.02	.37***
Depression Anxiety Stress Scale-21 total score	--	.21**	.48***	--
Dysfunctional Beliefs and Attitude about Sleep Scale-10 (DBAS-10)	--	--	.41***	--
Parental Stress Scale (PSS)				
Stressors	--	--	.39***	--
Rewards	--	--	-.24***	.17**

Parenting Stress Index (PSI)				
Distress	--	.17**	.41***	--
Negative parent-child interaction	--	--	.34***	--
Modified Infant Sleep Questionnaire (ISQ)				
Frequency of waking	-.09	.17**	.20**	.11
Duration	--	.14*	.08	--
Frequency of co-sleeping	-.10	.18**	.18**	.24**
Perception of children's sleep as problematic	--	.18**	.48***	-.14*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, all one-tailed. All correlations for the ISQ use Spearman's ρ ; all other correlations use Pearson's r . -- = not examined.

Greater *negative affect* during night-waking episodes was associated with greater agreement with limit-setting, poorer mental health (DASS-21 Total scores), greater concerns about the effects of inadequate sleep (DBAS-10 consequences), greater parenting stress (PSS stressors, PSI distress), perceptions of more negative parent-child interactions (PSI), and a less rewarding parenting experience (PSS rewards). *PNTQ negative affect* was not associated with mothers' agreement with active comforting in hypothetical scenarios. Greater endorsement of *positive thoughts about active comforting* was associated with lower agreement with limit-setting, greater agreement with active comforting, and a more rewarding parenting experience (PSS rewards).

Part 3: Association of PNTQ Subscales to Night-waking Variables

Measures

Modified Infant Sleep Questionnaire (ISQ).

The ISQ (Morrell, 1999b) was developed as a measure of infant sleep and sleep behaviour and has been adapted for use with parents of preschool-aged children (DiLeo, Lewis, & Taliaferro, 2005). Two items were used to measure the frequency of children's night-waking: a) the number of nights children woke per week ("none", "less than once a week", "1 night a week" to "7 nights a week") and b) the number of times each night children woke and needed comforting ("does not wake", "once a night" to "5 or more times per night"); these items were multiplied to provide an estimate of the frequency of waking per week. Individual ISQ items were used to measure: a) the average duration of night-wakings ("duration"; "less than 10 minutes", "10 to 20 minutes" to "1 hour or longer"), b) how often parents take their child into their own bed or lie with them in response to night-wakings ("frequency of co-sleeping"; "none", "less than once a week",

“1 night a week” to “7 nights a week”); and c) whether mothers thought their children had a sleep problem (“perception of children’s sleep as problematic”; “no”, “yes, mild” “yes, moderate”, “yes, severe”). Less than 5% of the data were missing for any item. Missing items were imputed with the sample mode.

Analyses

The association of PNTQ subscales to ISQ night-waking variables (frequency of night-waking, duration of night-waking, co-sleeping, and mother’s perception of their children’s sleep as problematic) was examined using Spearman correlations (*rho*).

Hypotheses.

It was predicted that: a) *Positive thoughts about limit-setting* would be negatively correlated with the frequency of night-waking and co-sleeping; b) *Concerns about limit-setting* and *negative affect* would be positively correlated with the frequency and duration of night-waking, co-sleeping, and mothers’ perceptions of their children’s sleep as problematic; and c) *Positive thoughts about active comforting* would be positively correlated with the frequency of night-waking and co-sleeping and negatively correlated with mothers’ perceptions of their children’s sleep as problematic.

Results

Correlations between PNTQ subscales and night-waking variables are presented in Table 4.4. Contrary to prediction, *positive thoughts about limit-setting* were not significantly correlated with the frequency of night-waking or co-sleeping. As predicted, greater endorsement of *concerns about limit-setting* was associated with greater frequency and duration (trend) of night-waking, more frequent co-sleeping, and greater perception of children’s sleep as problematic. Greater endorsement of *negative affect* on

the PNTQ was associated with greater frequency, but not duration, of night-waking, more frequent co-sleeping, and greater perception of children's sleep as problematic. Greater endorsement of *positive thoughts about active comforting* was associated with more frequent co-sleeping, but was not associated with the frequency of night-waking, as had been predicted. Greater endorsement of *positive thoughts about active comforting* was also associated with lower perceptions of children's sleep as problematic (trend).

Discussion

The present study examined the development and preliminary validity of the Parents' Night-waking Thoughts and Affect Questionnaire (PNTQ), a measure of the thoughts and feelings experienced by parents of preschool-aged children during night-waking episodes. The PNTQ makes a unique contribution to the literature by providing an alternative to using the Maternal Cognitions about Infant Sleep Questionnaire (MCISQ; Morrell, 1999a) – a measure of thoughts and affect related to infant sleep problems – when studying night-waking among preschool-aged children. Although the MCISQ has been demonstrated to be a valid and reliable measure when used with parents of infants (MCISQ, 1999a; Morrell & Steele, 2003; Sadeh et al., 2007), pilot work for the present study (Coulombe & Reid, 2006) suggests that it may lack several constructs important to an understanding of night-waking among older children. These constructs include consideration of parents' concerns about their own sleep and the sleep of other family members (Wiggs & Stores, 1998), positive thoughts and affect associated with active comforting (Greene & Groves, 2008; Ramos et al, 2007), and positive thoughts and affect associated with limit-setting.

Although a six-factor structure was originally proposed (i.e., anger, doubt, concerns about sleep, concerns about limit-setting, positive thoughts about limit-setting, and positive thoughts about active comforting), confirmatory factor analyses supported a four-factor structure for the PNTQ. The final PNTQ sub-scales were: negative affect related to night-waking, concerns about limit-setting, positive thoughts about limit-setting, and positive thoughts about active comforting. Reliability of these subscales was adequate to good and tests of the preliminary convergent and predictive validity of the measures were promising. These tests also provided preliminary support for several elements of the model of night-waking presented in Figure 4.1. In the paragraphs that follow each of these subscales will be discussed, followed by a general discussion of study limitations and areas for future research.

Negative Affect

The decision to collapse the proposed “anger”, “doubts”, and “concerns about sleep” items into a single “negative affect” subscale is comparable, but not identical to, Johnson and McMahon’s (2008) combined MCISQ “anger”, “doubts” and “limit-setting” score. In the present study, concerns about limit-setting items were not included in the items collapsed into a single negative affect subscale for conceptual reasons. Concerns about limit-setting are discussed following the discussion of negative affect.

The PNTQ negative affect items reflect the negative inner experiences, concerns, and affect of the parent during night-waking episodes. The parent is concerned about the effects of their child’s night-waking has on them (e.g., “If I don’t get him to settle quickly, I will be too tired to function the next day”), experiences negative affect directed towards their child (e.g. “Resenting his demands on me”), and, possibly as a result,

perceives their child negatively (e.g., “He is very frustrating”). These thoughts are almost exclusively parent-centered and reflect the inner experiences of the parent during night-waking episodes. Because negative affect related to night-waking was associated with both agreement with limit-setting and engagement in co-sleeping, PNTQ negative affect may represent anger, frustration, and doubt resulting from engaging a strategy that is against one’s parenting beliefs. Mothers’ perceptions of their children’s sleep as problematic may be related to this conflict and its associated negative affect. The positive association between co-sleeping and negative affect may also reflect general difficulties in setting limits associated with more dysfunctional parenting (e.g. Arnold, O’Leary, Wolff, & Acker, 1993).

The findings of the present study in regard to negative affect are highly consistent with general models of parenting (e.g., Abidin, 1992; Dix, 1991). These models highlight the roles of negative thoughts, affect, and perceptions of the child in dysfunctional parenting practices. The present findings also suggest that the negative parenting patterns discussed in relation to parenting that occurs during the day also influence parenting that occurs during the night. The significant correlations between PNTQ negative affect and parenting stress, mental health, negative parent-child interactions and mothers’ perceptions of sleep as problematic support this interpretation.

The relationship of negative affect experienced during night-waking to parents’ actual strategy use, beyond co-sleeping, was not examined in the present study and requires further investigation. Consistent with the general parenting literature (e.g., Dix, 1991), negative affect experienced during night-waking may put parents at greater risk of enacting coercive or punishing strategies. This is an important area for future research.

Clinicians working with parents who express concerns about their children's night-waking should explore parents' affect during night-waking episodes. Parents who express negative affect - consistent with that measured by the PNTQ negative affect subscale - may benefit from additional support during night-waking interventions. This support may be more likely to be accepted when it addresses the difficulties faced by parents during night-waking interventions and provides ways of building parents' inner resources and coping. This requires further investigation.

Concerns about Limit-Setting

In contrast to the negative affect items, the concerns about limit-setting items are exclusively child-centered (e.g. "If I don't respond to him at all, it may cause him lasting emotional harm"). These items reflect negative thoughts about the effect of limit-setting on the child, rather than on the parent. As concerns about limit-setting was positively correlated with agreement with active comforting, these thoughts may be characteristic of parents who are making a transition from active comforting to limit-setting strategies, as a means of addressing problematic sleep. Lingering agreement with active comforting and concerns about limit-setting might reflect ambivalence about this transition or uncertainty while attempting to make a significant behavioural change. This may be distressing for parents, as supported by the positive correlation with parenting distress.

Because parents who endorse concerns about limit-setting largely endorse child-centered (versus parent-centered) negative thoughts, clinical interventions may be more effective using an approach that takes these concerns into consideration. Child-centered concerns should be addressed directly and parents may benefit from psycho-education about limit-setting and its effects. Should parents require reassurance and support in this

area, they can be directed to a review by Crnec, Matthey, and Nemeth (2010) who have found no negative consequences of limit-setting on children's well-being. Positive effects of addressing children's night-waking on children's health and well-being (Crnec et al., 2010) may also be discussed and may assist these parents to persevere with limit-setting interventions.

Thorough discussion of parents' goals and fears may be necessary both prior to, and during, intervention to address lingering ambivalence. It may be appropriate to help parents to identify and discuss inconsistencies between their beliefs about night-waking strategies and their strategy use. It may also be helpful to provide parents with alternative positive thoughts about limit-setting that may support intervention efforts. This requires empirical investigation. Positive thoughts about limit-setting are discussed in the next paragraph.

Positive Thoughts about Limit-setting

To my knowledge, the present study is the first to examine positive thoughts about limit-setting among parents of preschool-aged children. The convergent validity of this subscale was supported by a moderate correlation with parents' agreement with limit-setting. Although negative correlations between mothers' positive thoughts about limit-setting and night-waking variables were observed, they were not statistically significant. Longitudinal research will be required to further validate this subscale and to better understand the role of positive thoughts about limit-setting in children's night-waking. Current results may have been confounded by the inclusion of parents new to limit-setting, as well as those who have practiced limit-setting regularly, in our sample. Parents new to limit-setting may have children who wake frequently if limit-setting has not been

practiced long enough to reduce night-waking or if it has triggered a response-burst. For these parents, a positive correlation between night-waking variables and positive thoughts about limit-setting might even be observed. Further research is also required to investigate the association of positive thoughts about limit-setting to actual limit-setting use.

Positive Thoughts about Active Comforting

The results of the present study suggest that, for some parents, co-sleeping may be influenced by agreement with active comforting and by positive thoughts about active comforting during night-waking episodes. The hypothesis that positive thoughts experienced during night-waking episodes would be associated with co-sleeping, but not with mothers' perceptions of their children's sleep as problematic, was supported. This is consistent with the concept of intentional co-sleeping as described by Ramos et al. (2007). In the Ramos et al. (2007) study, intentional co-sleepers were described as parents who co-slept with their children as an expression of their parenting beliefs. These parents had children who woke more frequently during the night than children who slept independently, but did not view their children's sleep as problematic. It may be that consistency between parents' beliefs and behaviour provides parents with the opportunity to enjoy the experience of co-sleeping with their children. Positive thoughts about active comforting during night-waking may be an indication of this enjoyment. It is unlikely that parents who are engaging in a night-waking strategy that they agree with (i.e., active comforting) and are experiencing positive thoughts and affect related to this strategy (e.g., "I'm glad he needs me") will perceive night-waking to be problematic.

From a clinical perspective, it is also unlikely that parents who experience frequent positive thoughts during night-waking episodes, and who do not see their children's sleep as problematic, will seek or want help related to night-waking. Unless this perception changes, or negative consequences of active comforting become apparent, no intervention may be required. Clinicians should be careful to avoid making the assumption that the presence of co-sleeping alone is sufficient to merit intervention. Further, the moderate negative correlation between positive thoughts about active comforting and agreement with limit-setting suggests that at least some parents who endorse positive thoughts about active comforting may be fundamentally opposed to limit-setting interventions if offered.

Limitations and Future Directions

The present study provides strong preliminary support for the validity of the PNTQ. There are several limitations to this research, however, that should be noted. First, all data were from mothers' questionnaire reports. Thus, some of the associations observed may be attributable to shared method variance. Multi-method, multi-rater studies will be required in future studies. Second, analyses examining associations between PNTQ subscales and parenting and children's night-waking were cross-sectional and correlational. Thus, although discussion focused on a select set of interpretations about observed relationships, based on the presented model of night-waking (Figure 4.1), these interpretations are not the only explanations for study findings. Causation cannot be inferred from the data and analyses presented. Further, the relationships observed between variables may be influenced by other, unmeasured, factors (e.g., child level factors such as temperament or behaviour during night-wakings; family structure). Third,

much of the theoretical background for this study was drawn from the infant sleep literature (e.g., Morrel, 1999a; Morrell & Steele, 2003; Sadeh & Anders, 1993). Although mechanisms underlying sleep and parenting may be similar for parents of infants and preschool-aged children (Johnson & McMahon, 2008), there are little data available with which to assess this assumption. Parents involved in our pilot work for this study noted important differences at the cognitive-, affective-, and behavioural-levels between parenting an infant who wakes at night and parenting a preschool-aged child. This limitation is countered in part, by the use of general models of parenting (e.g., Dix, 1991) to inform the development, validation, and interpretation of the negative affect subscale as well as the larger night-waking model within which the PNTQ is situated (Figure 4.1).

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Chapter 5: Preliminary Validation of the Night-waking Strategies Scale

Over 30% of preschool-aged children wake at least once per night and signal (cry, call out) for parental intervention (NSF, 2004), making night-waking one of the most prevalent behavioural sleep problems among 2- to 5-year-old children (Hiscock, Canterford, Ukoumunne, & Wake, 2007; National Sleep Foundation [NSF], 2004). Behavioural sleep problems, such as night-waking, are maintained primarily by behavioural rather than physical factors. Parenting behaviours in response to night-waking - hereinafter referred to as their night-waking strategies - play an important role in the development, maintenance, and treatment of night-waking (e.g., Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003; Johnson & McMahon, 2008). Despite their importance to an increased understanding of night-waking, as well as to prevention and intervention efforts, few studies have examined night-waking strategy use among parents of preschool-aged children in the general population.

The most prominent night-waking strategies discussed in the popular and research literatures are active comforting (e.g., cuddling until child falls asleep, co-sleeping) and limit-setting (e.g., allowing the child to settle to sleep on his/her own) (e.g., Morrell & Steele, 2003; Owens, Palermo, & Rosen, 2002; Ramos & Youngclarke, 2006; Sadeh, 2005; Sadeh & Anders, 1993). Limit-setting, which includes extinction and graduated extinction (colloquially, variations of “cry it out” approaches), involves not responding to children’s night-time requests and maintaining minimal parent-child interaction through the night⁵. Active comforting, in contrast, involves responding to children’s night-waking

⁵ It is important to note that limit-setting does not preclude parental response or interaction when the child is sick, needs assistance with toileting, has had a nightmare, or

and acquiescence to children's night-time requests for comfort, including co-sleeping (i.e., sleeping in the same bed as the child for all or part of the night). Active comforting has been associated with concurrent sleep problems among infants (Morrell & Cortina-Borja, 2002) and preschool-aged children (Fehlings, Weiss, & Stephens, 2001; Johnson & McMahon, 2008) and predicts the development and persistence of settling and night-waking problems among infants (Morell & Cortina-Borja, 2002; Morrell & Steele, 2003). The defining characteristic of empirically supported night-waking interventions is parents' shift away from active comforting and towards limit-setting (Sadeh, 2005).

Little is known about the use of limit-setting and active comforting among the general population of parents of preschool-aged children. Conceptually, limit-setting and active comforting are opposing strategies, although review of National Sleep Foundation (NSF, 2004) data suggests that, outside of the context of intervention, parents sometimes use limit-setting and active comforting strategies in combination. A substantial portion of parents in the NSF study (2004) endorsed engaging in at least some active comforting behaviours: 42% stay with their child until they fall asleep, 23% bring them to their (the parents') bed, and 7% sleep with their child in his/her bed. A substantial number of parents also endorsed engaging in at least some limit-setting behaviours: 66% allow their child to return to sleep on their own following a night-waking and 60% briefly check on their child before s/he falls back to sleep independently.

The extent to which parents of preschool-aged children use other strategies in addition to, or instead of, limit-setting and active comforting is also unclear. In the

in other situations in which health and safety concerns are a feature of the night-waking episode.

present study, three night-waking strategies in addition to limit-setting and active comforting are examined. These strategies are: punishment, rewards, and routines. They were included in the Night-waking Strategies Scale because they were mentioned by parents participating in pilot work for the present study (Coulombe & Reid, 2006) and because rewards and routines form potentially important components of effective night-waking interventions. Parents who completed a pilot interview for the present study (Coulombe & Reid, 2006) described using systems in which access to certain toys or privileges would be withdrawn (punishment) or increased (reward) in response to night-waking.

It has been suggested that parents may engage in punishing behaviours during night-waking interactions with their children, particularly as parent-child night-time goals diverge (Teti, Kim, Mayer, & Counterline, 2010). For example, disagreement over where children should sleep can result in frustration for both parties, placing parents at greater risk of coercive practices. In the general parenting literature, negative parental affect is associated with more punitive parenting (Dix, 1991). The use of rewards in response to children's night-waking is less frequently discussed in the literature. Although rewards are an adjunctive component to behavioural interventions for night-waking (Owens et al., 2002), their use outside of the context of formal intervention has not been studied.

The enactment of sleep hygiene principles which include predictable and positive bed-time routines (Owens et al., 2002; Henderson & Jordan, 2010) is also an adjunctive component to interventions. Again, little is known about the use of sleep hygiene among families in the general population. Recently, more consistent bedtime routines have been

associated with higher sleep quality ($r = .36$, $p < .001$) in a community sample of 2- to 8-year old children (Henderson & Jordan, 2010).

A significant barrier to a better understanding of night-waking strategies among parents of preschool-aged children is the lack of validated measures for use with this population. The closest available instrument for measuring parents' night-waking strategies is the Parental Interactive Bedtime Behaviour Scale (PIBBS, Morell & Cortina-Borja, 2002), a measure of strategies used to settle infants to sleep. Initial factor analysis of the PIBBS conducted with the validation sample, revealed five settling strategies: Active physical comforting ("active comforting"; e.g., cuddling or rocking in arms), encourage autonomy ("limit-setting"; e.g., leave to cry), passive physical comforting (e.g., standing near crib without picking child up), social comforting (e.g., reading a story), and settle by movement (e.g., car rides) (Morell & Cortina-Borja, 2002). The internal consistency of the PIBBS was reported to be adequate ($\alpha = .71$ for the total 17-item scale; Morrell & Cortina-Borja, 2002), although internal consistency statistics for the subscales, which were recommended for use over the full scale, were not provided. Two of the strategies, active physical comforting (active comforting) and encourage autonomy (limit-setting), were significantly associated with infant sleep scores ($r = .50$ and $r = -.26$, respectively) as assessed using Richman's (1981) sleep diary.

The PIBBS - with wording of some items altered to be more age-appropriate (e.g., replacing "baby" with "child") - has also been used to examine associations between sleep problems (e.g., trouble settling, waking) and settling strategies used by parents of preschool-aged children (age range = 2 to 5 years; M age = 3.8 years; Johnson & McMahan, 2008). Although several significant associations between children's sleep and

parents' settling strategies were noted ($r = .30$ to $.60$), factor analysis revealed a different five-factor structure from that observed in the original PIBBS: Distraction ($\alpha = .35$; e.g., "offer a toy"), passive interaction ($\alpha = .35$; e.g., "play your child a musical tape or CD"), active interaction ($\alpha = .71$; essentially composed of active comforting behaviours, e.g., "settle your child into your bed"), settle by movement ($\alpha = .83$; e.g., "walk your child in pram"), and verbal ($\alpha = .73$; e.g., "talk softly to your child"). The internal consistency for the full 16-item PIBBS was 0.69 (Johnson & McMahon, 2008). It is notable that no limit-setting factor emerged and that a fundamental infant limit-setting item ("leave child to cry") was dropped from analyses due to low endorsement. The lack of a limit-setting factor is a significant barrier to research examining limit-setting in the population.

Low endorsement of the "leave to cry" item in the Johnson and McMahon (2008) analyses illustrates the need for age-specific and developmentally appropriate measures of night-waking. Almost half of the parents of infants in Morrell and Cortina-Borja's original validation sample of parents of infants (aged 12 to 19 months) endorsed "leav[ing] to cry" frequently (i.e., "sometimes" or more; Morrell & Cortina-Borja, 2002). Low endorsement of the item among parents of preschool-aged children may have been related to the increased verbal ability of preschoolers. In pre-verbal infants, crying is the de facto method of communicating needs and wants, while in verbal preschoolers crying may be reserved for more specific emotional or physical distress. Mothers may find crying at night more alarming in preschool-aged children, who have alternate means of communication, than in infants, who do not. As a result, they may view "leaving to cry" as less appropriate (Coulombe & Reid, 2006).

In 2006, a small pilot study was conducted (Coulombe & Reid) to investigate whether the PIBBS would be appropriate for use with parents of preschool-aged children, without substantive alteration. A small number of modest changes were made to the wording of PIBBS items, similar to those described by Johnson and McMahon (2008) (e.g., changing “baby” or “infant” to “child”; using Canadian terms in place of British terms [e.g., “stroller” instead of “pram or buggy”]). I then asked a sample of 10 mothers of 2- to 5-year-olds to answer the PIBBS, while “thinking out loud about their answers” (Adamson, Gooberman-Hill, Wool-head, & Donovan, 2004; Knafl, Deatrck, Gallo, Holcombe, Bakitas, Dixon, et al., 2007). Mothers were also asked whether the PIBBS reflected their experiences with parenting a preschool-aged child who wakes at night. Briefly, mothers noted that, as their children aged, many of the behaviours listed on the PIBBS became impractical (e.g., rocking, carrying, and the “feed” element of the “give a feed/drink” item). Further, mothers spontaneously discussed a number of behaviours not reflected in the PIBBS. These included punishment and rewards (as discussed above) and more subtle behaviours associated with limit-setting (e.g., a brief check to ensure that the child was not sick, followed by leaving the child to settle without further assistance). These findings suggest that the PIBBS, validated for use with parents of infants and toddlers, may not be appropriate for assessing the range of strategies used by parents of preschool-aged children.

The purpose of the present study was to develop a self-report measure of night-waking strategy use among parents of preschool-aged children (Night-waking Strategy Scale, NSS; Appendix A) and to examine its psychometric properties in a community

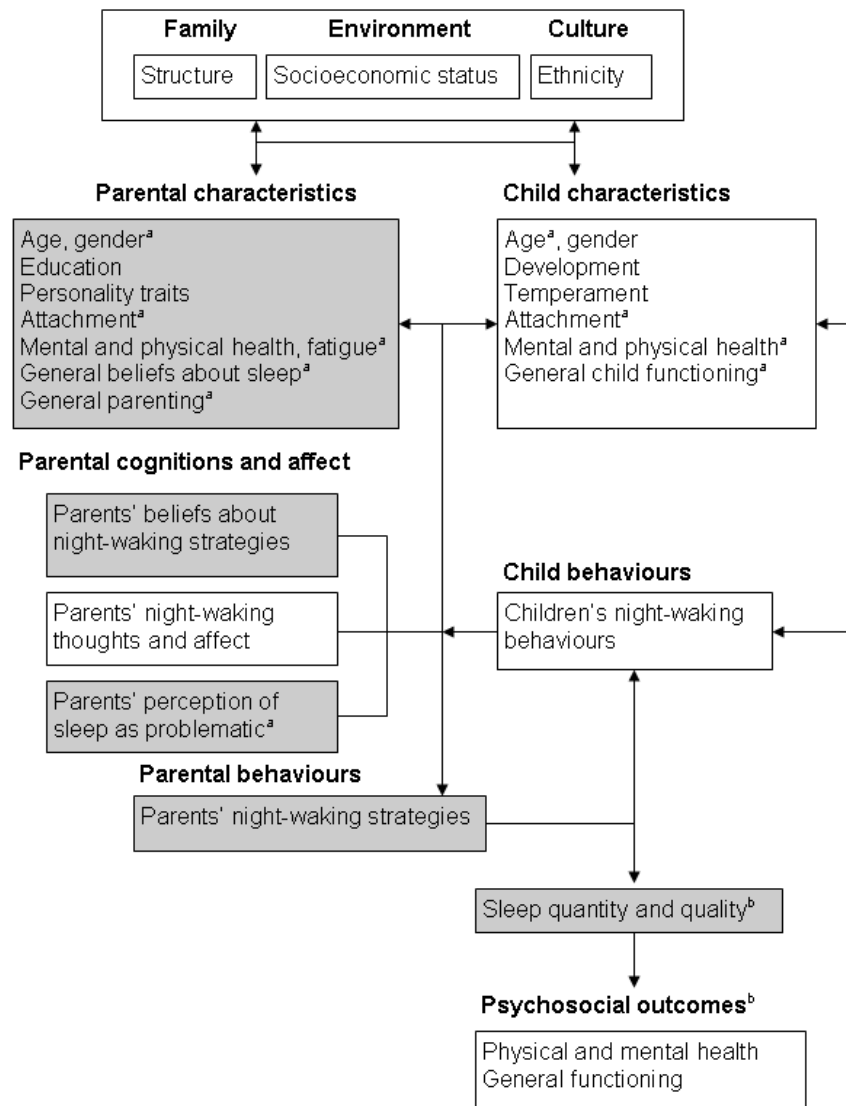
sample. The development and validation of the NSS is an essential step in developing and testing a model of night-waking among preschool-aged children (Figure 5.1).

As no similar, well-validated measures exist for use with this population, the preliminary validity of the NSS was assessed using general measures of parenting (e.g., parental discipline, over-reactivity, laxness) that have been associated with children's sleep (e.g., Hall, Zubrick, Silburn, Parsons, & Kurinczuk, 2007; Owens-Stively, Frank, Smith, Hagino, Spirito, Arrigan et al., 1997; Teti et al., 2010). Assuming some consistency between general parenting and parenting that occurs at night (Figure 5.1), I expected small to moderate associations with some NSS subscales. This was an assumption only, however, as associations between general and night-time parenting have not been adequately investigated (Sadeh & Anders, 1993; Teti et al, 2010). Children's night-waking, parents' agreement with night-waking strategy use, and parents' perceptions of sleep as problematic (Morrell, 1999a; Morrell & Steele, 2003; Sadeh & Anders, 1993) were also expected to be associated with parents' night-waking strategies (Figure 5.1). As such, they were included as indicators of validity. Specific hypotheses are presented in the next section.

Methods

The NSS was developed as part of a larger project examining parenting and night-waking among a community sample of preschool-aged children and their families. The larger project was approved by the University of Western Ontario's Research Ethics Board, under the Department of Psychology's Expedited Review process (Appendix B). Participants were provided with a \$15 gift card in appreciation for their contribution to this work.

Figure 5.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Parents’ night-waking strategies are proximal determinants of children’s night-waking behaviours and, as a result, the characteristics of children’s night-waking episodes. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the model that are not a central focus of the present dissertation are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present dissertation are indicated by a shaded text-box.



Recruitment

Participants were recruited from a variety of community sources (e.g., play-groups, preschools, community notice boards and internet classified advertisements, an existing recruitment database maintained by the Developmental Area of the Department of Psychology at the University of Western Ontario) in the London, Ontario area, as part of a larger research project. Parents who expressed interest in the study completed a telephone screener to assess study eligibility and collect preliminary demographic information. Parents were eligible to participate in the present study if they were comfortable with written and spoken English and had a generally healthy 2-to 5-year-old child. Children were required to have woken up during the night at least once every two weeks during the month prior to study enrollment. This criterion was intended to maximize the range of parents' night-waking strategies endorsed in this study - those strategies which should be associated with less night-waking (e.g., limit-setting) should be observed when children with infrequent night-waking are included. Parents whose children exhibit no parent-reported night-waking, however, provide no opportunities for parents to enact, and thus endorse, any night-waking strategies. Parents were ineligible to participate if their child regularly slept elsewhere or if they were not involved in their child's sleep. These parents were excluded as the study required to parents to have direct knowledge of their child's sleep and to be available to enact night-waking strategies. All eligible and consenting parents were mailed a questionnaire package, including a pilot version of the NSS (Appendix C).

Informed consent was documented during the telephone screener. Written consent was also obtained from parents who returned completed study materials.

Participants

Three hundred and five parents (91% of those contacted) completed telephone screeners, and 296 (97% of those who completed screeners) were recruited for the larger study (i.e., met inclusion and exclusion criteria, agreed to participate in the questionnaire study, and were mailed questionnaire packages); the primary reason for study ineligibility was not having a child between the ages of 2 to 5 years at the time of recruitment.

Completed questionnaires were received from 203 mothers (68% response rate). Most mothers ($M_{\text{age}} = 32.4$ years, $SD = 5.1$) were Caucasian (90%, $n = 182$) and had earned at least one college/trade diploma or university degree (69%, $n = 141$). Approximately 23% ($n = 46$) of families had an income of less than \$40,000 and approximately 18% ($n = 36$) had an income of \$100,000 or greater. Children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$; 48% male) were required to be healthy (i.e., not have any chronic illnesses that could be related to night-waking) and to have woken a minimum of one night every two weeks in the month prior to recruitment. None of the children in this study had been previously diagnosed with a sleep disorder; 6% had taken a medication in the past to help with sleep (generally when sick or unwell). The majority of mothers ($n = 104$, 51%) indicated that they thought their child had a mild sleep problem, 23% ($n = 46$) a moderate, and 5% ($n = 10$) a severe sleep problem; 21% ($n = 43$) did not think their child had a sleep problem. Most mothers ($n = 184$, 90%) indicated that they believed that children should sleep in their own bed or crib in their own bedroom.

Part 1: Development and Structure of the Night-waking Strategies Scale

Measures

Night-waking Strategies Scale (NSS).

Night-waking strategies were defined as sets of conceptually similar parental behaviours enacted in response to children's night-waking. A list of 59 parental behaviours (Appendix D) was compiled from a variety of sources including: the PIBBS (Morrell & Cortina-Borja, 2002), pilot interviews with 10 mothers of preschool-aged children who wake during the night, clinical experience, review of the academic pediatric sleep and parenting literatures (e.g., Belksy, 1984; Fehlings et al., 2001; Morrell & Cortina-Borja, 2002), the National Sleep Foundation 2004 Sleep in America Poll (NSF, 2004), and review of popular parenting and sleep literatures and websites. Data from the pilot interviews were used to identify themes and constructs relevant to night-waking among preschool-aged children and to the experience of parenting a preschool-aged child who wakes at night (Coulombe & Reid, 2006). The themes were further examined, verified, and expanded upon using the other research sources (e.g., literature review, clinical experience). NSS items were written to reflect these themes.

Potential NSS items were initially analysed for readability (Grammatik; Reference Software International, 1999) and re-written until their Flesch-Kincaid grade level was below 8 (i.e., could be read by someone at a grade 8 reading level). Item clarity (i.e., how easy the item was to understand) was assessed by five graduate students who rated the initial pool of items from 1 ("not clear at all") to 5 ("completely clear"); any item with an average score of less than 4 was re-written.

The preliminary construct validity of the 59 NSS items was assessed following a method outlined by Hinkin and Tracey (1999). This method is an empirical approach to identifying items that most closely match a defined construct (e.g., limit-setting) prior to administering the items to a sample of participants from the target population (e.g.,

mothers of preschool-aged children). Briefly, definitions for each dimension were created, and along with all potential NSS items, provided to a sample of 20 graduate and undergraduate students. Students rated each item according to how consistent it was with the definition of each dimension from 1 (“completely inconsistent”) to 5 (“completely consistent”) (Appendix D). Mean scores for each item were calculated and students’ scores of how well the definitions matched each item were compared using repeated measures analysis of variance (Hinkin & Tracey, 1999). Items were discarded when: a) the item did not have a mean score of $> 4/5$ on its intended construct and b) the item did not score significantly higher on its intended construct than on other constructs ($p < .01$). The 8-10 items with the highest mean scores on their intended constructs and lowest scores on other constructs were selected for each subscale and a pilot version of the NSS was created. This resulted in a 31-item pilot version of the NSS (Appendix D).

Eight experts in pediatric sleep, recruited via email correspondence, and five parents (one father and four mothers), recruited from the London, Ontario community, reviewed the 31-item pilot version of the NSS and provided feedback. The most substantive feedback following expert review was the inclusion of 11 “sleep hygiene” items (e.g., “Have him go to bed at the same time every night”) and 3 items specific to napping. Additional punishment, reward, and active comforting items were added at this stage to better represent these behaviours. The instructions, which asked parents to: “Rate how often [they] do each of the following things when [their] child wakes at night and makes a request”, were altered from a 5-point scale (“never”, “hardly ever”, “sometimes”, “often”, “very often”) to a 9-point ratio-based rating scale, with anchors at every other response option (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the

time”, 9 = “all of the time”). Parents involved in the pilot work for this study indicated a preference for an additional response: “always” or “all of the time”. The ratio-based scale was added to the NSS in recognition that the frequency with which a parent will engage in a given night-waking strategy is dependent on the frequency of his or her child’s night-waking. That is, a parent who resists a child’s requests for comfort four out of eight wakings (i.e., 1/2 of the time) is likely less accurately described as engaging in limit-setting than is a parent who resists a child’s requests three out of four wakings (i.e., 3/4 of the time).

The final pilot version of the NSS administered to the validation sample of the 203 mothers who returned completed questionnaires, described above, contained 55 items (Appendix D). Of these 55 items, 12 items were written specifically for children who nap (3 items) or leave the room (9 items). These items were not endorsed by a sufficient number of parents to be included in subsequent analyses.

Analyses

Preliminary Item Analyses.

Preliminary item analyses were conducted to examine the endorsement frequencies, distribution, means and standard deviation of the 43 NSS items applicable to the entire sample. At this stage, two items intended to measure punishment were discarded due to low variability: More than 90% of parents reported that they engaged in these behaviours less than 1/4 of the time their children woke at night. Thus, a total of 41 items were examined further.

In order to select the 4-5 items per subscale to be retained for testing in factor analyses (described below), items were grouped according their identified constructs

(“hypothesized subscales”): Limit-setting, active comforting, punishment, reward, and sleep hygiene. Any item that appeared to be performing in a markedly different manner than the other items in its hypothesized subscale was noted (e.g., a limit-setting item with a very low mean in comparison to other hypothesized limit-setting items). Preliminary hypothesized subscale scores were calculated by computing the mean of the subscale items and corrected item-total correlations (correlation of an item with its hypothesized subscale, when the target item is removed) and correlations of the target item with every other subscale were examined. Items with the highest item-total correlations ($> .30$) and lowest correlations with other subscales ($< .30$) were retained. This resulted in 22 items being carried forward into factor analyses.

Factor Analyses.

Given the strong emphasis on construct validity during the preliminary scale development phases, promising pattern of correlations just described, and a priori expectations about NSS factors, confirmatory factor analysis (CFA, Maximum Likelihood Estimation) was conducted (using EQS version 6.1 for Windows) to test the fit of the data to the hypothesized factor structure. Mardia’s normalized estimate of multivariate non-normality was 31.67, suggesting considerable deviation from normality (Byrne, 2006). Thus, robust chi-square (Satorra-Bentler) and goodness of fit statistics (Comparative Fit Index [CFI], Root Mean Square Error of Approximation [RMSEA] with 90% confidence intervals; Byrne 2006) were examined. CFA was performed allowing for missing data on some items. Overall, less than 5% of responses were missing for any item.

Description of the NSS Subscales.

The internal consistency of the NSS subscales was examined using Cronbach's alpha and the mean inter-item correlations. Descriptive statistics (M , SD) were examined. To examine whether mothers endorsed used some NSS strategies significantly more than others, mothers' NSS subscale scores were compared using repeated measures ANOVAs with Bonferroni adjustments for post-hoc comparisons.

One-Month Test-Retest Reliability.

Thirty-eight mothers who participated in the larger study also completed the NSS one month after completing the baseline measure (76% of mothers approached to complete the one-month follow-up). NSS subscale scores were calculated as previously described (i.e., mean of all subscale items). Test-retest reliability was examined using Pearson's correlations.

Results

Preliminary Item Analyses.

The retained items had a mean item-total correlation of 0.52 and a mean correlation of 0.10 with other subscales. It should be noted that, for the hygiene items, this process resulted in a focused group of bed-time behaviours more appropriately named "routines". Means and standard deviations for items retained for factor analysis are presented in Table 5.1.

Factor Analyses.

The proposed five-factor NSS structure was supported by the CFA. The Satorra-Bentler χ^2 was 340.38 ($df = 199$, $p < .001$). The CFI of 0.86 indicated an acceptable fit to the data (Byrne, 2006). The robust RMSEA was .06 (90% C.I. = .05 -.07), also indicating

Table 5.1

Final NSS items, item means and standard deviations, and factor loadings

Item	<i>M</i>	<i>SD</i>	Loading
Limit-setting			
Wait and see if he will go back to sleep on his own	4.6	2.6	.70
Gradually increase the amount of time I wait before responding to him	2.9	2.2	.44
Ignore his request	1.7	1.4	.45
Respond quickly to him (reverse scored)	3.9	2.6	.60
Active comforting			
Lie with him in his bed or bedroom until he falls asleep	4.1	3.0	.74
Sit with him or stand in his room until he falls asleep	3.1	2.6	.57
Let him sleep in my bed	4.4	3.1	.34
Do a quick check but leave him to fall back to sleep without me in the room (reverse scored)	6.8	2.5	.48
Rewards			
Give him lots of praise	5.2	3.3	.94
Give him a special treat or reward	2.4	2.3	.54
Don't make a big fuss about it (reverse scored)	5.2	3.1	.62
Let him know how proud I am of him	5.6	3.2	.90
Use a reward system to encourage him to sleep through the night	2.0	2.0	.40
Punishment			

Scold him	1.5	1.2	.53
Tell him that if he doesn't go back to sleep, then he will be punished	1.4	1.0	.76
Shout or yell at him	1.3	.9	.57
Threaten to punish him	1.2	.7	.73
Use an angry tone of voice to tell him it is time to go to sleep	1.8	1.5	.78
<hr/>			
Routines			
Have him go to bed at the same time every night	7.3	1.9	.75
Have a bedtime routine	7.7	1.8	.72
Have him spend time in relaxing or quiet activities before bed	7.4	1.9	.64
Avoid exciting activities before bed	7.2	1.9	.50

Note: NSS instructions asked parents to: “Rate how often [they] do each of the following things when [their] child wakes at night and makes a request”. A 9-point ratio-based rating scale, with anchors at every other response option (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”) was used.

an acceptable fit for the proposed model (Byrne, 2006). Factor loadings are presented in Table 5.1. The final NSS is presented in Appendix A.

Description of the NSS Subscales.

The lowest internal consistency statistics were for the limit-setting ($\alpha = .61$, mean inter-item correlation = .29) and active comforting ($\alpha = .62$, mean inter-item correlation = .29) subscales. The internal consistency statistics for the reward ($\alpha = .82$, mean inter-item correlation = .48), punishment ($\alpha = .79$, mean inter-item correlation = .45), and routines ($\alpha = .75$, mean inter-item correlation = .43) subscales were adequate.

Missing items (< 5%) were imputed using mean-substitution and subscale scores were calculated by averaging items. The subscale means, standard deviations, and correlations with each other are presented in Table 5.2. Statistically significant differences were observed among subscale means ($F [4, 202] = 361.79, p < .001$). Parents endorsed using routines most frequently (~ 3/4 of the time) than all other strategies, followed by active comforting (~ 1/2 of the time), rewards (between 1/4 of the time and 1/2 the time), limit-setting (~ 1/4 of the time), and punishment (~ never). All subscale means were statistically significantly different from one another (Table 5.2). Limit-setting and active comforting were not significantly associated with one another, nor were limit-setting and routines. Somewhat surprisingly, limit-setting was positively correlated with punishment, active comforting was positively correlated with rewards, and rewards were positively correlated with punishment. Routines were negatively correlated with punishment (Table 5.2).

Table 5.2

NSS subscale means, standard deviations and correlations among NSS subscales

NSS subscale	<i>M</i>	<i>SD</i>	Correlations			
			1. Ls	2. Ac	3. Re	4. P
1. Limit-setting (Ls) ^a	3.3	1.5	1.0			
2. Active comforting (Ac) ^{a,b,c}	4.6	1.9	-.13	1.0		
3. Rewards (Re) ^{a,b}	4.1	2.2	.14	.18*	1.0	
4. Punish (P)	1.5	.8	.18*	-.01	.20**	1.0
5. Routines (Ro) ^{a,b,c,d}	7.4	1.4	-.12	-.10	-.02	-.15*

Note: NSS subscale scores were the mean of subscale items; subscales scores could range from a minimum of 1 to a maximum of 9 (1 = “never”, 3 = “1/4 of the time”, 5 = “1/2 of the time”, 7 = “3/4 of the time”, 9 = “all of the time”). Higher scores reflect more frequent use of the night-waking strategy. * $p < .05$, two-tailed. ** $p < .01$, two-tailed.

a = mean significantly higher than mean for punishment, $p < .01$

b = mean significantly higher than mean for limit-setting, $p < .01$

c = mean significantly higher than mean for rewards, $p < .01$

d = mean significantly higher than mean for active comforting, $p < .01$

One-Month Test-Retest Reliability.

One month test-retest reliability of the NSS subscales was variable across strategies: Limit-setting, $r = .68, p < .001$; active comforting, $r = .80, p < .001$; reward, $r = .84, p < .001$; punishment, $r = .51, p < .01$; and routines, $r = .68, p < .001$ (all one-tailed).

Part 2: Preliminary Validation of the Night-waking Strategies Scale

Measures

Parenting Scale (PS).

Mothers completed the Parenting Scale (PS; Arnold, O’Leary, Wolff, & Acker, 1993), a measure of dysfunctional parenting. PS items include a simple sentence stem and a series of checkboxes anchored by one effective and one dysfunctional parenting behaviour. Parents endorse where they fall along the continuum between the effective and dysfunctional parenting behaviours. Although a three-factor structure for the PS was originally supported (verbosity, over-reactivity, laxness; Arnold et al., 1993), subsequent studies of the structure of the PS have supported a two-factor structure (over-reactivity, laxness; Rhoades & O’Leary, 2007). A total score (“PS total”), over-reactivity (e.g., “When I’m upset or under stress I am picky and on my child’s back”) score, and laxness (e.g., “I threaten to do things that I know I won’t actually do”) score were calculated. The PS total score was the mean of all PS items. PS over-reactivity and laxness scores were the mean of all items in each of those subscales. Thus the lowest possible PS score (total or subscale) was 1 and the highest possible score was 7. Higher scores were indicative of more dysfunctional parenting. In the present sample, the internal consistency (Cronbach’s α) was 0.83 for the PS total scale ($M = 2.72, SD = .57$), 0.76 for the over-reactivity subscale ($M = 2.53, SD = .76$), and 0.80 for the laxness subscale ($M = 2.36, SD = .75$).

Parent Behaviour Checklist (PBC).

The Parent Behaviour Checklist (PBC; Fox, 1994) provided a second measure of parenting. The PBC has demonstrated construct validity when examining maternal parenting practices (Brenner & Fox, 1999). Parents were asked to rate how often they perform a list of 31 parenting behaviours on a 4-point scale (“Almost never/never” to “Almost always/always”). Nurturance (e.g., “I praise my child for learning new things”) and discipline (e.g., “I yell at my child for whining”) PBC subscale scores were calculated. PBC subscale scores were the mean of the items in that subscale; therefore the lowest possible PBC subscale score was 1 and the highest possible score was 4. Higher subscale scores indicate greater use of that strategy. Greater nurturance subscale scores reflected more positive or effective parenting, while the discipline subscale reflected more dysfunctional parenting. In the present sample, the internal consistency (Cronbach’s α) was 0.70 for the PBC nurturance subscale ($M = 3.39$, $SD = .41$) and 0.72 for the discipline subscale ($M = 1.22$, $SD = .24$).

Night-waking Vignettes Scale (NVS).

The Night-waking Vignettes Scale (NVS; Coulombe, 2010a) is a measure of parents’ agreement with four night-waking strategies (for a similar measure for use with parents of infants, see Sadeh, Flint-Ofir, Tirosh, & Tikotsky, 2007). Parents are presented with eight vignettes describing different night-waking scenarios, each followed by a limit-setting, active comforting, rewards, and punishment parenting behaviour (NVS items). Parents are asked how much they agree (on a 6-point scale, “No, definitely disagree” to “Yes, definitely agree”) with each behaviour given the scenario described in the vignette. The NVS vignettes describe night-waking behaviours that may be enacted

by 2- to 5-year-olds (vs. infants) and were written from clinical experience and interviews conducted with parents (Reid & Coulombe, 2006). Vignettes were written to reflect a range of demanding child behaviours (e.g., child leaves room, child is emotional, child is non-compliant), including making different types of night-waking requests (e.g., child asks for a drink [an instrumental request], child asks for a cuddle [a comfort request]). Cronbach's alpha for the NVS subscales ranged from .74 to .91 (agreement with limit-setting [$M = 3.62$, $SD = .86$] $\alpha = .74$, agreement with active comforting [$M = 3.18$, $SD = .89$] $\alpha = .79$, agreement with rewards [$M = 3.38$, $SD = 1.21$] $\alpha = .91$, agreement with punishment [subscale score $M = 2.31$, $SD = .87$] $\alpha = .77$). NVS subscale scores were the mean of subscale items. Subscales scores could range from a minimum of 1 to a maximum of 6. Higher scores reflect greater agreement with the night-waking strategy.

Modified Infant Sleep Questionnaire (ISQ).

The ISQ (Morrell, 1999a) was developed as a measure of infant sleep and sleep behaviour and has been used in several studies (Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003) that have advanced our understanding of the settling strategies of parents of infants. The ISQ has been modified for use with parents of preschool-aged children (DiLeo, Lewis, & Taliaferro, 2005). ISQ items used in this study were based on the previous month. Mothers reported on how many nights a week their children woke, on average, using a 9-point scale ("None" to "Every night of the week") and how many times per night their children woke each night and required comforting, using a 6-point scale ("Does not wake" to "5 or more times a night"). The scores on these items were multiplied to create a night-waking frequency score ("frequency of waking"; i.e., wakings per week). Mothers also reported on how long children were awake, on average, when

night-wakings occur (“duration”; “less than 10 minutes”, “10 to 20 minutes”, “20 to 30 minutes”, “30 to 40 minutes”, “40 to 50 minutes”, “50 to 60 minutes”, “1 hour or longer”). Mothers’ active comforting was queried in one ISQ item: Mothers rated, on a 9-point scale (“None” to “Every night of the week”) how often they “take [their] child into [their] bed or lie with [their] child in his bed when he awakens in the middle of the night” (“frequency of co-sleeping”). Finally, mothers rated the extent to which they thought their children had “sleeping difficulties” on a four-point scale (“perception of child’s sleep as problematic”; “No”, “Yes, mild”, “Yes, moderate”, “Yes, severe”).

Analyses

Missing Data.

Less than 5% of the data were missing for any items. Mean substitution was used to impute data for continuous variables (parenting measures, NSS, NVS). Mode substitution was used to impute data for categorical or discrete variables (ISQ items).

Evaluation of Preliminary Validity of NSS Sub-Scales.

Pearson’s product moment correlation coefficients were used to examine the preliminary convergent validity of the NSS with measures of parenting (Parenting Scale [PS; Arnold et al., 1993], the Parent Behaviour Checklist- short form [PBC; Fox, 1994]) and parents’ agreement with Night-waking strategies (Night-waking Vignettes Scale [NVS; Coulombe, 2010a]). Spearman’s rank order correlation coefficients were used to examine the predictive validity of the NSS subscales with measures of children’s sleep (the Infant Sleep Questionnaire [ISQ, Morrell, 1999a; adapted for preschool aged-children, DiLeo et al., 2005]). As hypotheses had specific predictions about the direction of association between NSS subscales and other variables, one-tailed tests of significance

were used. Due to the number of comparisons involved, a probability (p) value of $< .01$ was considered statistically significant, while probability values between $p = .05 - .01$ were considered trends in the data.

Hypotheses.

Convergent validity. It was predicted that: 1) NSS *limit-setting* would be positively correlated with agreement with limit-setting and nurturance and negatively correlated with agreement with active comforting and laxness. 2) NSS *active comforting* would be positively correlated with agreement with active comforting, nurturance, and laxness and negatively correlated with agreement with limit-setting scores. 3) NSS *rewards* would be positively correlated with agreement with rewards. 4) NSS *punishment* would be positively correlated with agreement with punishment, discipline, over-reactivity, and laxness and negatively correlated with agreement with active comforting, agreement with limit-setting, and nurturance. 5) NSS *routines* would be positively correlated with agreement with limit-setting and nurturance and negatively correlated with agreement with active comforting and laxness.

Predictive validity. It was predicted that: 1) NSS *limit-setting* would be negatively correlated with the frequency of night-waking and the frequency of co-sleeping. 2) NSS *active comforting* would be positively correlated with the frequency of night-waking, frequency of co-sleeping, and mothers' perception of their child's sleep as problematic. 3) NSS *rewards* would be positively correlated with the frequency of night-waking and mothers' perceptions of their child's sleep as problematic. 4) NSS *punishment* would be positively correlated with the frequency and duration of night-waking and mothers' perceptions of their child's sleep as problematic. 5) NSS *routines*

would be negatively correlated with the frequency and duration of night-waking, the frequency of co-sleeping, and mothers' perceptions of their child's sleep as problematic.

Results

Convergent Validity.

Correlations between NSS subscales and measures of parenting and night-waking are presented in Table 5.3. As predicted, NSS *limit-setting* was positively correlated with agreement with limit-setting and negatively correlated with agreement with active comforting; contrary to predictions, NSS limit-setting was not significantly correlated with measures of parenting. NSS *active comforting* was positively correlated with agreement with active comfort and negatively correlated with agreement with limit-setting; however, NSS active comforting was not significantly correlated with parenting. NSS *rewards* was positively correlated with agreement with rewards and NSS *punishment* was positively correlated with agreement with punishment scores, as predicted. Also as predicted, NSS punishment was positively correlated with discipline, over-reactivity, and laxness and negatively correlated with nurturance. NSS punishment scores were not significantly correlated with agreement with active comforting or limit-setting (in the predicted direction). NSS *routines* was positively correlated with agreement with limit-setting scores (trend) and nurturance and negatively correlated with agreement with active comforting scores and laxness.

Predictive Validity.

NSS *limit-setting* was negatively correlated with the frequency of night-waking (trend) and the frequency of co-sleeping, as predicted. NSS *active comforting* was

Table 5.3

Correlations between NSS subscales, parenting, and night-waking variables

	Night Waking Strategies (NSS)				
	Limit-setting	Active comforting	Rewards	Punishment	Routines
Parent Behavior Checklist					
Discipline	--	--	--	.38***	--
Nurturance	-.06	.06	--	-.18**	.25***
Parenting Scale					
Over-reactivity	--	--	--	.29***	--
Laxness	-.04	.08	--	.22**	-.37***
Night-waking Vignettes Scale (NVS)					
Agreement limit-setting	.26***	-.27***	--	.13	.14*
Agreement active comforting	-.25***	.46***	--	-.06	-.22**
Agreement reward	--	--	.38***	--	--

Agreement punishment	--	--	--	.41***	--
<hr/>					
Infant Sleep Questionnaire (ISQ)					
Frequency of waking	-.13*	.33***	.13*	.07	-.08
Duration	--	--	--	.09	-.06
Frequency of co-sleeping	-.17**	.73***	--	--	-.11
Perception child's sleep is a problem	--	.20**	.29***	.16*	-.13*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, all one-tailed. All correlations for the ISQ use Spearman's ρ ; all other correlations use Pearson's r .

positively correlated with the frequency of night-waking, the frequency of co-sleeping, and mothers' perception of their child's sleep as problematic, also as predicted. NSS *rewards* was positively correlated with the frequency of night-waking (trend) and mothers' perceptions of their child's sleep as problematic. Contrary to predictions, NSS *punishment* was not correlated with the frequency or duration of night-waking; it was, however, positively correlated with mothers' perceptions of their child's sleep as problematic (trend). Also contrary to predictions, NSS *routines* was not significantly correlated with the frequency or duration of night-waking or with the frequency of co-sleeping; NSS routines was negatively correlated with mothers' perceptions of their child's sleep as problematic.

Discussion

This chapter presents the development and preliminary validation of the Night-waking Strategies Scale (NSS). The NSS is, to the best of my knowledge, the first self-report measure of night-waking strategy use among parents of preschool-aged children. Although additional validation is necessary (e.g., confirmation of factor-structure and psychometric properties in a second sample of parents, examination of factor-structure among children of different age groups and genders, comparison to objective measures of parenting and night-waking [e.g., video-observation]), the preliminary psychometric properties of the NSS, including the convergent and predictive validity results (framed in Figure 5.1), are promising.

My original intent was to adapt the Parental Interactive Bedtime Behaviour Scale (PIBBS; Morrell & Cortina-Borja, 2002) for use with parents of preschool-aged children. When used with parents of infants, the PIBBS has been a valuable research tool (e.g.,

Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003). When used with parents of older children, however, evidence in support of the PIBBS is less clear. First, the original factor structure of the PIBBS was not replicated in a sample of parents of preschool-children (Johnson & McMahon, 2008). Particularly concerning was the lack of a limit-setting factor. Limit-setting is a core feature of almost all empirically-supported interventions for night-waking (Crnec, Matthey, & Nemeth, 2010; Sadeh, 2005) and is widely discussed in the popular parenting literature (Ramos & Youngclarke, 2006). It is also a conceptually opposite strategy to active comforting, a strategy associated with night-waking. As such, measures of night-waking strategies that do not include limit-setting omit a key night-waking construct and may be of limited clinical and research utility. Second, clinical experience, review of the popular and academic day-time parenting literatures and cognitive interviews (Adamson et al., 2004) conducted with parents of preschool-aged children, suggested that the PIBBS did not reflect the broader range of parenting behaviours available to parents as their children develop. Beyond active comforting and limit-setting, the most important strategies identified during the NSS development procedures were punishment, rewards, and routines.

Psychometric Properties of the NSS

The proposed five-factor structure of the NSS (limit-setting, active comforting, punishment, rewards, and routines) was supported. Cronbach's alpha statistics were at least adequate for the NSS subscales, given the small number of items in each subscale. Internal consistency was lower for limit-setting and active comforting, possibly reflecting inconsistency among parents' behaviours or mutual exclusivity among some NSS items. For example, the active comforting subscale contains three items that reflect active

comforting [“sit with him or stand with him in his room”, “lie with him in his bed or bedroom”, “let him sleep in (parent’s) bed”], but that cannot all be endorsed as occurring frequently. Enactment of one behaviour precludes enactment of the others. A mother who lets her child sleep in her bed, cannot also sit or stand with her child in his room or lie with him in his bed. Thus, a limitation of the ratio-scale used in the NSS is that, where mutual exclusivity among items exists, higher endorsement of one item necessitates lower endorsement of other items. This lowers the internal consistency of the subscales. The reward subscale, which has a higher internal consistency, is not characterized by similar mutual exclusivity.

One-month test-retest reliability was adequate or better for active comforting and rewards but lower for punishment, limit-setting, and routines. Insufficient data about the stability of night-waking generally, let alone about the stability of parents’ night-waking strategies, is available to make clear evaluations of the meaning of this result. The stability of night-waking and sleep problems among young children has been questioned (Jenni, Zinggeler Fuhrer, Igllowstein, Molinari, & Largo., 2005; Matthey, 2001; Scher, Zuckerman, & Epstein, 2005) and considerable inconsistency in parent-infant night-time interactions has been observed (Goodlin-Jones, Burnham, Gaylor, & Anders, 2001). Nevertheless, it is concerning that those strategies that require the greatest consistency to be effective – limit-setting and routines – had two of the lower test-retest coefficients. It may be that strategies that require the most consistent effort are the most likely to be affected by situational factors (e.g., fatigue, child behaviour; see Figure 5.1). Punishment, in general, tends to be more characterized by inconsistency (Belsky, 1984). This could explain the low stability for this subscale.

Endorsement of Night-waking Strategies

To my knowledge, this is the first study to report and compare the frequency of night-waking strategy use among parents of preschool-aged children in the general population. Parents endorsed engaging in routines regularly (~ 3/4 of the time) and reported in engaging in more active comforting and rewards, on average, than they did limit-setting. Punishment was rarely endorsed. My results suggest that, in the general population, a number of parents are engaging in active comforting, a strategy consistently associated with children's sleep problems (Johnson & McMahon, 2008; Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003), while relatively fewer parents are engaging in limit-setting, a central component of effective night-waking interventions. Across studies, the prevalence of behavioural sleep problems, such as night-waking, among preschool-aged children is approximately 30% (e.g., NSF, 2004). The finding that active comforting was relatively frequently endorsed among the present sample of community parents, while limit-setting was relatively infrequently endorsed, may help to explain the significant prevalence of night-waking in the population.

The exclusive use of either limit-setting or active comforting has been questioned by multiple authors (e.g., Goodlin-Jones et al., 2001; Morrell & Cortina-Borja, 2002; Ramos & Youngclarke, 2006) and overlap in the use of limit-setting and active comforting has been endorsed on the PIBBS by parents of infants (Morrell & Cortina-Borja, 2002). In the present sample, the association between parents' active comforting and limit-setting scores was not statistically significant. A moderate to high negative correlation would be expected if parents enacted one strategy in strong preference over the other. This supports suggestions that parents are inconsistent in their strategy use and

that, among parents in the population, limit-setting and active comforting are not used in isolation of one another. The effect of inconsistent strategy use on children's night-waking was not directly examined in the present study and requires investigation.

I expect that the somewhat surprising positive correlation between the NSS punishment and rewards subscales may be reflective of parents actively attempting to intervene in their children's sleep without professional guidance (which should encourage the use of limit-setting and rewards, rather than rewards and punishment). In the general parenting literature, similar associations between the use of rewards and punishment have been noted among parents in the population (Thompson, Raynor, Cornah, Stevenson, & Sonuga-Barke, 2002). Both punishment and rewards were associated with mothers' perceptions of their children's sleep as problematic.

Night-waking Strategies and Mothers' Agreement with Night-waking Strategies

Parents' agreement with night-waking strategies was only moderately correlated with their self-reported strategy use, suggesting that other factors may influence parents' night-waking strategies. Possible factors include parental cognitions and affect during night-waking interactions (Figure 5.1; Coulombe, 2010b; Johnson & McMahon, 2008; Morrell, 1999b; Sadeh et al., 2007) and situational stressors, including children's behaviour (Figure 5.1; Belsky, 1984; Coulombe, 2010c; Morrell & Steele, 2003; Sadeh & Anders, 1993). Associations among mothers' beliefs, thoughts and affect related to night-waking, and night-waking strategies will be explored in future investigations.

Night-waking Strategies and Parenting

Although general parenting behaviours such as laxness have been associated with children's sleep problems (Hall et al., 2007; Owens-Stively et al., 1997), there were fewer

significant associations between parenting and parents' use of night-waking strategies than expected. This requires further investigation and may be related to heterogeneity in motivations underlying parents' night-waking strategy use. For example, Ramos, Youngclarke, and Anderson (2007) have identified two groups of parents who engage in co-sleeping with their infants- those who co-sleep intentionally and those who co-sleep in reaction to children's waking. Although children of both reactive and intentional co-sleepers demonstrate similar amounts of night-waking, reactive co-sleepers perceive their children's sleep as more problematic (Ramos et al., 2007). Similarly, some parents may engage in limit-setting because they believe it is a responsible and caring thing to do for their child, while others may engage in limit-setting because they perceive night-waking as a power struggle (Sadeh et al., 2007). The first group of limit-setters would likely score high on nurturance, as predicted, while the second group would likely score high on discipline (as seen with parents who engage in punishment). Combined, however, significant associations with these parenting subscales would not be observed. The significant correlations of the NSS punishment subscale with measures of dysfunctional parenting (e.g., over-reactivity, laxness, coercive discipline) likely indicates greater homogeneity among the relatively smaller group of parents who endorse this strategy. Similar factors, such as parenting stress and parents' mental health, may predispose parents to engage in punishment both during the day and the night.

Night-waking Strategies and Night-waking

Associations between parenting strategies and night-waking variables were generally consistent with those observed in the sleep literature related to infant (e.g., Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003) and preschool-aged children

(e.g., Johnson & McMahon, 2008). In the present study active comforting was significantly and positively associated with the frequency of night-waking ($\rho = .33$, $p < .001$) and parents' perceptions of their child's sleep as problematic ($\rho = .20$, $p < .001$). Limit-setting was negatively correlated with the frequency of night-waking ($\rho = -.13$, $p < .05$). In Morrell and Cortina-Borja's original study using the PIBBS (2002), active comforting and limit-setting were significantly associated with infant sleep ($r = .50$ and $r = -.26$, respectively). In Johnson and McMahon's study with preschool-aged children (2008), children's sleep was positively correlated with active interaction ($r = .60$, $p < .01$), although a limit-setting subscale was not available.

When comparing the magnitude of the associations observed in these studies with the magnitude of the associations observed in the present study, it is important to note that associations between maternal settling behaviours (PIBBS scores) and sleep problem scores may be somewhat inflated by the sleep problem measures used in these studies: Richman's sleep diary (1981) in the Morrell and Cortina-Borja (2002) study and the Tayside Children's Sleep Questionnaire (TSQ; McGreavey, Donnan, Pagliari, & Sullivan, 2005) in the Johnson and McMahon (2008) study. Both the sleep diary scores and TSQ scores appeared to include at least one item that enquires about the frequency of co-sleeping. These could inflate the magnitude of the correlations between the active comforting subscale score and the sleep score. For example, in the present study, the NSS active comforting was moderately to highly correlated with the ISQ co-sleeping item ($\rho = .73$). Including this item in a sleep problem composite would have resulted in higher absolute correlations with active comforting and limit-setting. Although such items may be legitimately included in scoring criteria and measures of children's sleep problems (as

was done in the Johnson & McMahon [2008] and Morrell & Cortina-Borja [2002] studies), I chose to examine night-waking variables separately instead.

Limitations

The extent to which the NSS subscales may vary across different populations and cultures remains to be investigated. Parents' expectations and beliefs about children's sleep have been described as being determined by an interaction between biology and culture (Jenni & O'Connor, 2005). Sleeping arrangements, in particular, appear to be largely culturally determined, with a greater percentage of children from Pan-Caucasian than Pan-Asian countries sleeping independently (Mindell, Sadeh, Kohyama, & How, 2010). It is interesting to note, however, that night-waking may have similar prevalence rates across cultures (Jenni & O'Connor, 2005). It is also interesting to note that across cultures, active parental involvement in young children's sleep (e.g., presence at bedtime, holding, rocking) significantly predicts night-waking and likely mediates the relationship between co-sleeping and night-waking in cultures in which co-sleeping or room sharing are the norm (Mindell et al., 2010).

The NSS has not been examined in a clinical context and comparisons of the NSS subscale scores among parents of children with clinically significant night-waking and parents of children without these problems have not been conducted; these are important next steps in the validation of this measure. There was insufficient variability in our validation sample to properly examine the influence of parents' demographic background on the factor structure or NSS subscale scores. Similarly, there was not a large enough sample size to examine child-level effects (e.g., age, sex). These are limitations of this study. Shared method variance may account for some of the associations in the present

study. All measures were parent self-report. This is a common methodological problem in pediatric sleep research, particularly when parenting behaviours are examined (Mindell et al., 2010). Video observation of children's night-waking (videosomnography) is the only currently available alternative, although this method can be costly and have the perception among some as being intrusive (Scher, Epstein, Sadeh, Tirosh, & Lavie, 1992). Despite this perception, videosomnography has an unparalleled ability to provide both the objective and contextual observational data that has been influential to our understanding of infant sleep (e.g., Goodlin-Jones et al., 2001) and fundamental to studies of general parent-child behaviour (e.g., Kochanska, Kuczynski, & Radke-Yarrow, 1989). Finally, it should be noted that the present study was cross-sectional in nature and causal inferences cannot be made. Longitudinal studies of parenting and sleep across the short- and long-term are necessary.

Future Directions

Factors that predispose parents to engage in these strategies and the effects of these strategies over time require further investigation. This will improve understanding of the natural course of night-waking among preschool-aged children. Future research examining the frequency of use of parents' night-waking strategies in a clinical population seeking help for their children's sleep problems is also required. For example, although punishment was rarely endorsed in the present sample, it is possible that amongst parents who are more distressed with their children's sleep problem, the use of punishment might be more frequent. In the present study, punishment was significantly associated with parents' perceptions of sleep as problematic.

The effect of parents' night-waking strategy use on children's day-time functioning and parent-child relationships also requires investigation. Many parents express concerns about the effects of limit-setting on children's well-being. Although there is no evidence to support this concern in the intervention literature (Crnec et al., 2010), to the best of my knowledge, this question has not been empirically investigated in the general population of families with preschool-aged children. Recently, Taylor, Donovan, and Leavitt (2008) have suggested that the consistency with which a co-sleeping strategy is applied is more important to building strong parent-child relationships than the strategy itself. In their study, both consistent co-sleeping and consistent limit-setting (having the child sleep in their own room) were associated with positive parent-child day-time interactions. Inconsistent sleeping arrangements were associated with less positive parent-child day-time interactions.

The affect with which parents' night-waking strategies are enacted should also be considered in future research. Teti et al. (2010) found that mothers who were emotionally attuned to their children during settling at bed-time had children who experienced less disturbed sleep through the night. Parents who limit-set in a calm and sensitive manner may be more effective in reducing night-waking than parents who limit-set while anxious, doubtful, angry or distressed. Many parents who initially engage in limit-setting often find it distressing and difficult.

Finally, it should be noted that when the NSS was being developed, no validated measure of bed-time routines appropriate for this age group was available. Recently, the Bedtime Routines Questionnaire (BRQ; Henderson & Jordan, 2010) has been published and appears to be a promising measure of settling routines in young children (aged 2 to 8

years). Comparison of the BRQ and NSS routines subscale could be conducted in future research, both to examine the convergent validity of the routines subscale and to examine the circumstances under which measuring bed-time routines as part of a broader measure (i.e., the NSS) is sufficient and when the use of a more specific measure (i.e., the BRQ) is warranted.

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Chapter 6: Parent- and child-level factors associated with night-waking strategy use among parents of preschool-aged children

Night-waking is one of the most prevalent behavioural sleep problems among preschool-aged children. Approximately 30% of 2- to 5-year-olds wake at least once per night and request parental intervention [National Sleep Foundation (NSF), 2004]. Night-waking behaviours among preschool-aged children include calling out for parental attention; leaving the room (“parent-seeking”, Hayes, Parker, Sallinen, & Davare, 2001); requesting or engaging in activities not conducive to sleep, such as playing or watching television; requesting instrumental assistance, such as being tucked in; and requesting physical comfort, such as sleeping in the parents’ bed (“co-sleeping”) (Coulombe, 2010a).

Parents’ responses to children’s night-waking, referred to as their night-waking strategies, can either reinforce or extinguish future night-waking behaviour. As such, parents’ night-waking strategies are considered the most direct mechanisms through which children’s night-waking develops and is maintained (Johnson & McMahon, 2008; Morrell & Cortina-Borja, 2002; Morrell & Steele, 2003; Sadeh & Anders, 1993; Sadeh, Tikotsky, & Scher, 2010). They are the primary focus of almost all empirically supported night-waking interventions (Owens, Palermo, & Rosen, 2002; Sadeh, 2005). Despite their primary role in children’s night-waking, however, surprisingly little is known about parents’ night-waking strategies in the general population.

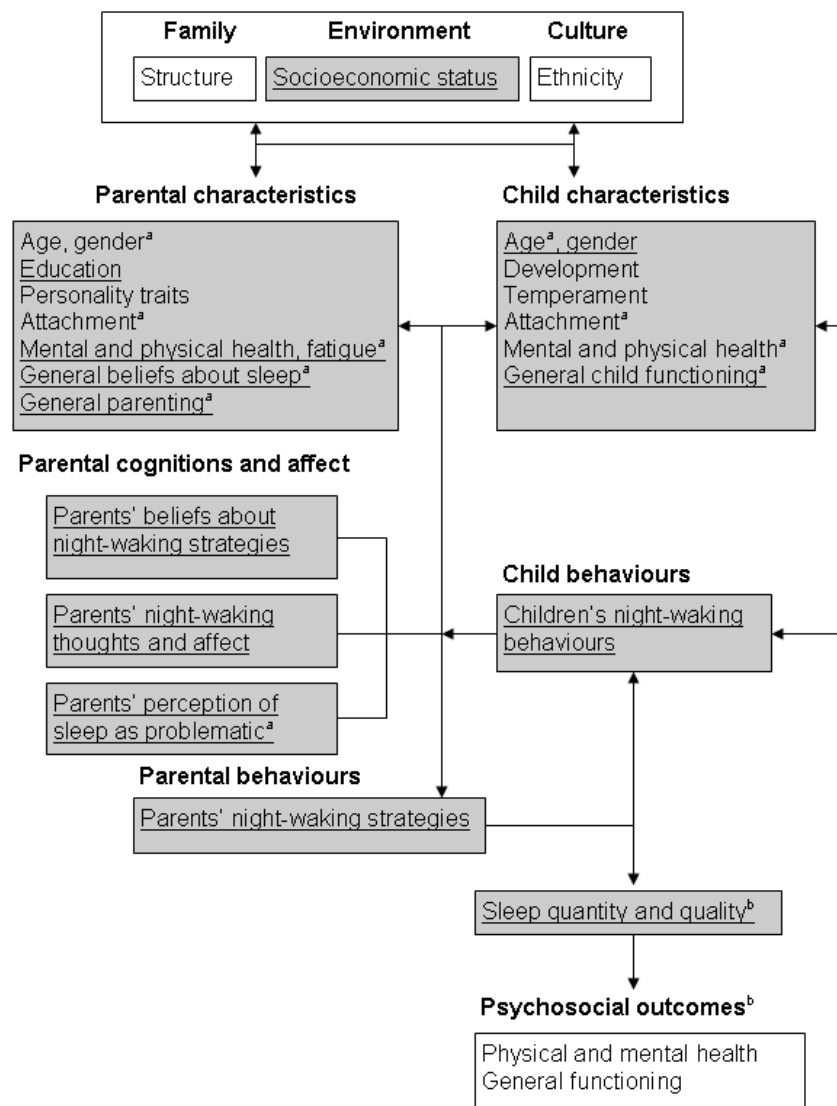
From a behavioural perspective, when parents acquiesce to children’s night-waking behaviours they increase the likelihood that these behaviours will re-occur. Acquiescence to children’s requests for comfort, specifically, is referred to as active

comforting. Active comforting is associated with sleep problems in infants and preschool-aged children (Johnson & McMahon, 2008; Morrell & Cortina-Borja, 2002; Morell & Steele, 2003). In a recent survey conducted by the National Sleep Foundation (NSF, 2004) more than 40% of parents of preschool-aged children endorsed engaging in at least some active comforting in response to children's night-waking (e.g., staying with children until they fall asleep, co-sleeping). In contrast, when parents resist children's night-waking behaviours, a strategy known as limit-setting, they decrease the likelihood that these behaviours will re-occur. Clinically, a decrease in night-waking is generally expected to follow a brief response burst, during which children are more persistent and vocal in their requests. This response burst can be emotionally and physically draining for parents. More than 60% of parents of preschool-aged children endorsed engaging in at least some limit-setting in response to children's night-waking (e.g., allowing children to return to sleep on their own following a night-waking; NSF, 2004).

Parents of preschool-aged children also use rewards (i.e., providing praise and tangible reinforcements when children sleep independently or call out less frequently), punishment (i.e., scolding, yelling, removing toys or privileges, or other coercive parenting methods to discourage night-waking or night-waking behaviours), and routines (i.e., provision of consistent, calming, and predictable activities in preparation for children's settling to sleep at night) to manage children's night-waking (Coulombe & Reid, 2006; Coulombe, 2010b). Of these, routines are most frequently endorsed by parents, being used approximately 3/4 of the time, followed by rewards, being used approximately 1/4 to 1/2 of the time (Coulombe, 2010b). Punishment was rarely endorsed by parents in the community, being used less than 1/4 of the time (Coulombe, 2010b).

Each of the parenting strategies described above has been associated with children's night-waking and/or mothers' perceptions of their children's sleep as problematic. Limit-setting and routines are associated with positive sleep outcomes. More frequent use of limit-setting has been correlated with less frequent night-waking (limit-setting; Coulombe, 2010b), while more frequent use of routines has been associated with lower maternal perception of children's sleep as problematic (routines; Coulombe, 2010b), and greater sleep quality (routines; Henderson & Jordan, 2010). In contrast, active comforting, rewards, and punishment have been associated with negative night-waking outcomes. For example, greater use of rewards (Coulombe, 2010b) and active comforting (Coulombe, 2010b; Hayes, et al., 2001; Johnson & McMahon, 2008; Morrell & Cortina-Borja, 2002) have been associated with more frequent night-waking. More frequent use of rewards and more frequent use of punishment have also been associated with mothers' perceptions of their children's sleep as problematic (Coulombe, 2010b). The purpose of the present chapter is to identify factors associated with night-waking strategy use among parents of preschool-aged children. It presents the first multivariate tests of a model of night-waking among preschool-aged children that considers both child- and parent-level determinants of night-waking (Figure 6.1). This model was influenced by models of infant sleep (e.g., Morrell & Steele, 2003; Sadeh & Anders, 1993) and is related to models of sleep problems among young children by Johnson and McMahon (2008) and Touchette, Petit, Tremblay, and Montplaisir (2009).

Figure 6.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the model that are not a central focus of the present study are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present study are indicated by a shaded text-box. Variables tested directly in the present study are underlined.



Like the infant models presented by Sadeh and Anders (1993) and Morrell and Steele (2003), the present model is transactional: it places primacy on the interaction of parent- and child-level variables and behaviours on the development and maintenance of night-waking. A broad range of parent-level and child-level factors are considered. In order to facilitate comparability across models and discussion in the field, the present model has been adapted from the Touchette et al. (2009) model to include prominent roles for children's behaviour and parents' cognitions and affect in influencing parents' night-waking strategies. These additions are consistent with the Johnson and McMahon (2008) and the infant sleep models. Other additions to the model include a consideration of general parenting, parents' sleep specific cognitions, fatigue, children's night-waking behaviours, and parents' perceptions of children's sleep as problematic in parents' night-waking strategies and in children's night-waking. These variables are discussed in greater detail below. In sum, the present model diverges most significantly from the Touchette et al (2009) model in that it: a) is specifically concerned with night-waking, b) considers children's night-waking behaviours as influences on parents' night-waking strategies, and c) considers the role of parents' cognitions and affect in determining their night-waking strategies.

Potential Child-level Influences on Night-waking Strategies

Child demographic factors such as age and sex may influence parents' night-waking strategies. The association of children's sex to night-time parenting is unclear, and as such, requires examination. Children's age has been associated with differences and changes in night-time parenting in the pediatric sleep literature (Morrell & Cortina-Borja, 2002; Teti et al., 2010). The nature of these changes, however, has not been

established and requires further investigation. For example, although limit-setting has been found to increase from the 2nd to 3rd years of life (i.e., from age 1 to 2 years) (Morrell & Corina-Borja, 2002), active comforting has been found to increase during the preschool period (from age 2 to 5 years) (e.g., Hayes et al., 2001; Jenni, Zinggeler, Fuhrer, Iglowstein, Molinari, & Largo, 2005; Ramos, Youngclarke, & Anderson, 2007).

Poorer day-time functioning in children (e.g., psychopathology) may also influence parents' night-waking strategies. Children's functioning is related to parenting that occurs during the day (e.g., Abidin, 1992; Belsky, 1984; Dix, 1991) and has been associated with sleep problems in multiple studies (e.g., Bates, Viken, Alexander, Beyers & Stockton, 2002; Coulombe, Reid, Boyle, & Racine, 2010; Hiscock, Canterford, Ukoumunne, & Wake, 2007). It is reasonable to expect that children who are challenging during the day are also challenging to their parents at night, although little research has specifically examined the consistency of children's behaviour across the 24-hour period (i.e., across day and night). It may be that challenging behaviours, such as conduct problems or hyperactivity manifest during night-waking episodes and increase the demandingness of night-waking interactions. These types of behaviours may make resisting requests effectively (i.e., limit-setting) more difficult and elicit acquiescence or punishment in parents (Bell, 1968).

At the heart of the presented model (Figure 6.1) is the fundamental assumption that children's behaviour during night-waking influences parents' night-time behaviour: Children's night-waking behaviours initiate parents' strategies. Hayes et al. (2001) have suggested that "parent-seeking", or leaving the bed in search of parental comfort, contributes to parents' decisions to co-sleep. Further, a moderate positive correlation has

been observed between children's comfort requests and mothers' use of co-sleeping (Coulombe, 2010a). Instrumental requests, conversely, have been negatively associated with mothers' use of co-sleeping (Coulombe, 2010a). The influence of children's night-waking behaviours on parents' other night-waking strategies (e.g., limit-setting, rewards) has not been examined.

Potential Parent-level Influences on Parents' Night-waking Strategies

Few investigations of the association between general parenting and night-time parenting have been conducted. It is reasonable to expect some consistency between general parenting and parents' night-waking strategies. Parents' use of punishment as a night-waking strategy has been associated with the use of coercive and ineffective general parenting strategies (Coulombe, 2010b). Higher levels of nurturance have been associated with more frequent use of positive bedtime routines (Coulombe, 2010b).

Associations among socioeconomic status, parents' mental health, parenting stress, parenting, and child outcomes are well-documented in the general parenting literature (Abidin, 1992; Belsky, 1984; Dix, 1991; Thomsson, Raynor, Cornah, Stevenson, & Sonuga-Barke, 2002; Vostanis, Graves, Meltzer, Goodman, Jenkins, & Brugha, 2006). These factors may also influence parents' night-waking strategies (Figure 6.1). Lower levels of SES have been associated with parents' use of more coercive discipline (Brenner & Fox, 1999), less nurturing (Fox, Platz, & Bentley, 1995), and greater negativity (Belsky, Bell, Bradley, Stallard, & Stewart-Brown, 2007). Parental psychopathology is a robust predictor of coercive strategies and negative child outcomes generally (Dix, 1991) and has been associated with sleep problems and night-waking in children (Fehlings, Weiss, & Stephens, 2001; Sadeh & Anders, 1993; Warren, Howe,

Simmens, & Dahl, 2006). Higher levels of parental stress (both stressful life events and daily hassles specific to parenting) have been associated with use of more negative parenting strategies (e.g., coercion, withdrawal) in multiple studies (Belsky, 1984; Crnic, Gaze, & Hoffman, 2005). Johnson and McMahon (2008) have demonstrated significant associations between mothers' ability to cope with stress and their thoughts about children's sleep. These thoughts, in turn, were significantly associated with night-time parenting (Johnson & McMahon, 2008).

Another potential influence on parents' night-waking strategies is fatigue (Figure 6.1; Coulombe & Reid, 2007). The effect of parents' fatigue on night-waking strategy use has not been explored. Owens et al. (2002) have suggested parental exhaustion and sleep deprivation as potential influences on the outcomes of limit-setting interventions. In populations of parents of children with special needs who require parental intervention during the night (e.g., medical conditions requiring care), the disruption in parents' own sleep has been associated with parental fatigue (Meltzer & Mindell, 2006; Thorne & Skuladottir, 2005), irritability (McDougall, Kerr, & Epsie, 2005), increased stress (Meltzer & Mindell, 2006; Quine, 2001), and distress (McDougall, Kerr, & Epsie, 2005; Thorne & Skuladottir, 2005). From the adult sleep deprivation literature we know that fatigue impairs emotional regulation, resulting in mainly more negative mood states (Clarke, 2005; Dement & Vaughn, 1999), and problem-solving (Belenky, Balkin, & Wesensten, 2005). Sleep deprivation also results in inconsistent, impulsive, and perseverative behaviours (Belenky et al., 2005). Parents who are fatigued may have fewer personal resources, resulting in difficulty using limit-setting strategies, which amongst children with sleep problems inherently require more effort, as children tend to resist and

protest. In many ways, the parenting of fatigued parents may be similar to the parenting of parents who face other resource challenges, such as those described in the previous paragraph.

Three types of sleep-related cognitions may also influence parents' night-waking strategies: dysfunctional beliefs about sleep generally, parents' beliefs about night-waking strategies (Coulombe, 2010c), and parents' thoughts during night-waking episodes (Coulombe, 2010d) (Figure 6.1). Dysfunctional beliefs about sleep, such as focusing on the potential harm of sleep loss, are associated with insomnia among adults (Harvey, & Grenall, 2003; Morin, Blais, & Savard, 2002). These cognitions result in heightened arousal and attention towards sleep-related threats such as checking the clock to calculate how much sleep has been lost, scanning the body for next-day effects of fatigue, and catastrophizing about functional consequences of lost sleep (Semler, & Harvey, 2004). Parents who hold dysfunctional beliefs about the effects of inadequate sleep may make short-term decisions aimed at returning both the child and themselves quickly to sleep (e.g., "it's okay to give in and lay down with her just for tonight"), such as acquiescence, active comforting, or punishment.

Parents' agreement with night-waking strategies (Coulombe, 2010c) and their thoughts and feelings during night-waking episodes (Coulombe, 2010d) may also determine their night-waking strategy use. Mothers' agreement with limit-setting, active comforting, rewards, and punishment in response to hypothetical night-waking vignettes has been positively correlated with their self-reported night-waking strategy use (Coulombe, 2010b). Significant associations have also been observed between the frequency of mothers' positive thoughts about active comforting, concerns about limit-

setting, and negative affect related to night-waking, and their use of co-sleeping (Coulombe, 2010d).

Characteristics of Night-waking Episodes as Potential Influences on Parents' Night-waking Strategies

Associations among children's night-waking and parents' night-waking strategies are likely bi-directional. In the present study, the frequency and duration of night-waking will be considered as potential influences on parents' use of limit-setting, active comforting, rewards, and punishment.⁶ More frequent or prolonged night-waking may exceed parents' ability to consistently resist children's night-waking behaviour or to adequately regulate their own affect and behaviour. For example, a mother in the pilot for this research described having decreasing ability to endure lengthy night-waking episodes over the course of the week, as the cumulative effects disrupted sleep set in. She described herself as more likely to engage in active comforting at the end of weeks characterized by lengthy and frequent night-wakings. Other parents may be more vulnerable to coercive behaviours, such as punishment, when the limit of their tolerance for children's night-waking behaviour has been reached.

Mothers' perceptions of their children's sleep as problematic will also be explored as a potential influence on night-waking strategies (Figure 6.1). Parents who view their

⁶ The frequency and duration of night-waking were not considered as potential influences on parents' use of routines. Unlike limit-setting, active comforting, rewards, or punishment, it is not possible for a parent to implement a positive bed-time routine as an immediate response to a child's night-waking behaviour within a given night-waking interaction.

children's sleep as problematic may be more likely to engage in strategies aimed at reducing night-waking, consistent with intervention and help-seeking, generally. Both punishment and rewards have been positively associated with mothers' perceptions of their children's sleep as problematic (Coulombe, 2010b). These strategies may reflect active attempts at behaviour change in response problematic night-waking behaviour.

Hypotheses.

Consistent with the present model of night-waking (Figure 6.1), it was predicted that, in multivariate linear regressions: a) More frequent use of limit-setting would be associated with greater agreement with limit-setting in hypothetical scenarios and more positive thoughts about limit-setting. b) More frequent use of active comforting would be associated with more frequent children's requests for comfort, greater agreement with active comforting, more positive thoughts about active comforting and more concerns about limit-setting, and more frequent night-waking. c) More frequent use of rewards would be associated with higher expectations for children's behaviours, more frequent night-waking, and greater perceptions of children's sleep as problematic. d) More frequent use of punishment would be associated with more problematic child behaviour, poorer maternal mental health, greater use of discipline, greater fatigue, higher agreement with punishment, more negative affect related to night-waking, more frequent night-waking, and greater perception of children's sleep as problematic. e) Greater use of routines would be associated with greater nurturance and less parenting laxness.

Methods

Recruitment

Participants were recruited from a variety of community sources in the London, Ontario area as part of a larger research project. Parents who expressed interest in the study completed a telephone screener to assess study eligibility and collect preliminary demographic information. Parents were eligible to participate in the present study if they were comfortable with written and spoken English and had a generally healthy 2-to 5-year-old child. Children were required to have woken up during the night at least once every two weeks during the month prior to study enrollment. Parents were ineligible to participate if they were not regularly involved in their children's sleep. These parents were excluded as the study required to parents to have direct knowledge of their child's sleep and to be available to enact night-waking strategies. All eligible and consenting parents were mailed a questionnaire package containing study materials and a stamped, addressed envelope for questionnaire return.

Informed consent was documented during the telephone screener. Written consent was also obtained from parents who returned completed study materials. The larger study was approved through the expedited ethics review process (Department of Psychology Ethics Review Board) at the University of Western Ontario (Appendix B).

Participants

Three hundred and five parents (91% of those contacted) completed telephone screeners, and 296 (97% of those who completed screeners) were recruited for the larger study (i.e., met inclusion and exclusion criteria, agreed to participate in the questionnaire study, and were mailed questionnaire packages). The primary reason for study

ineligibility was not having a child between the ages of 2 to 5 years at the time of recruitment. Completed questionnaires were received from 203 mothers (68% response rate). Most mothers ($M_{\text{age}} = 32.4$ years, $SD = 5.1$) were Caucasian (90%, $n = 182$) and had earned at least one college/trade diploma or university degree (69%, $n = 141$).

Approximately 23% ($n = 46$) of families had an income of less than \$40,000 and approximately 18% ($n = 36$) had an income of \$100,000 or greater. Children ($M_{\text{age}} = 3.4$ years, $SD = 1.0$; 48% male) were required to be healthy (i.e., not have any chronic illnesses that could be related to night-waking) and to have woken a minimum of one night every two weeks in the month prior to recruitment. None of the children in this study had been previously diagnosed with a sleep disorder; 6% had taken a medication in the past to help with sleep (generally when sick or unwell). The majority of mothers ($n = 104$, 51%) indicated that they thought their child had a mild sleep problem, 23% ($n = 46$) a moderate, and 5% ($n = 10$) a severe sleep problem; 21% ($n = 43$) did not think their child had a sleep problem. Most mothers ($n = 184$, 90%) indicated that they believed that children should sleep in their own bed or crib in their own bedroom.

Measures

Outcome.

Night-waking Strategies Scale (NSS). The NSS (Coulombe, 2010b) measures five night-waking strategies: limit-setting ($M = 3.3$, $SD = 1.6$; $\alpha = .61$), active comforting ($M = 4.6$, $SD = 1.9$; $\alpha = .62$), rewards ($M = 4.1$, $SD = 2.2$; $\alpha = .82$), punishment ($M = 1.5$, $SD = .8$; $\alpha = .79$), and routines ($M = 7.4$, $SD = 1.4$; $\alpha = .75$). Mothers rated how often they engaged in a series of behaviours (NSS items) when their children wake at night and make a request, using a 9-point ratio-based rating scale (“never” to “all of the time”).

Subscale scores were the average of the items in that subscale. For all NSS subscales, mothers could receive a minimum score of 1 and a maximum score of 9.

Child-Level Influences on Parents' Night-waking Strategies.

Child Age and Sex. Mothers indicated their children's sex during the telephone screener prior to completing questionnaires. Mothers provided their child's date of birth and the date they completed the questionnaires as part of the questionnaire package.

Children's age was calculated using these dates.

Strengths and Difficulties Questionnaire (SDQ). The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) examines parent-rated behaviours and emotions in children aged 2 to 18 years. It is a widely used measure, with multiple translations, and well established reliability and validity (Goodman, 2001; Goodman & Goodman, 2009). The SDQ hyperactivity ($M = 1.8, SD = .5$), emotional problems ($M = 1.3, SD = .3$), and conduct problems ($M = 1.5, SD = .4$) subscales were used in this study. Higher scores indicate greater difficulties. Internal consistency statistics in the present sample were: $\alpha = .77$ (hyperactivity), $\alpha = .56$ (emotional problems), and $\alpha = .72$ (conduct problems). Children's scores were the mean of SDQ subscale items. Missing items (< 5%) were imputed with the sample mean for that item, prior to computing subscale scores.

Children's Night-waking Behaviour Scale (CNBS). The CNBS (Coulombe, 2010a) measures four types of requests that children make during night-wakings: Activity requests (child requests activities that will maintain wakefulness or engages in behaviours that suggest s/he does not want to sleep; $M = 2.0, SD = 1.5; \alpha = .75$), fear requests (child indicates that s/he is scared; $M = 2.5, SD = 2.0; \alpha = .83$), comfort requests (child requests active comfort; $M = 5.2, SD = 2.3, \alpha = .60$), and instrumental requests (child requests

brief parental interventions that may assist him/her to settle independently; $M = 3.1$, $SD = 2.2$; $\alpha = .59$). In addition, one item measures “calling out” (i.e., a verbal form of signaling) and two items measure “getting out of bed” (“leaves the bed or crib”, “leaves the room”; averaged to create a single “getting out of bed” score; $M = 5.2$, $SD = 3.0$). Mothers rated CNBS items on a 9-point scale, according to how frequently their child displayed the night-waking behaviours in the past month (“never” to “all the time”). Subscale scores were the average of the items in that subscale. For all CBNS item and subscale scores, mothers could receive a minimum score of 1 and a maximum score of 9. Higher scores represent greater frequency of behaviour.

Parent-Level Influences on Parents’ Night-waking Strategies

Socioeconomic status. Mothers reported their highest education level achieved according to 13 categories ranging from “none” (i.e., no formal education) to “doctorate”, during the telephone screener. Family income was reported in the questionnaire package, as part of the demographic information collected for this study. Mothers selected from seven income categories, ranging from less than \$10 000 to \$100 000 or more in \$20 000 increments (CAD). Education, family income, and a combined variable (SES; education x family income) were used as variables during univariate analyses; the variable with the strongest correlation with parenting strategy of interest was used in multivariate analyses.

Parent Behaviour Checklist (PBC). The Parent Behaviour Checklist (PBC; Fox, 1994) provided a measure of parenting. The PBC has demonstrated construct validity when examining maternal parenting practices (Brenner & Fox, 1999). Parents were asked to rate how often they perform a list of 31 parenting behaviours on a 4-point scale (“Almost never/never” to “Almost always/always”). Nurturance (e.g., “I praise my child

for learning new things”) and discipline (e.g., “I yell at my child for whining”) PBC subscale scores were calculated. PBC subscale scores were the mean of the items in that subscale; therefore the lowest possible PBC subscale score was 1 and the highest possible score was 4. Higher subscale scores indicate greater use of that strategy. Greater nurturance subscale scores reflected more positive or effective parenting, while the discipline subscale reflected more dysfunctional parenting. In the present sample, the internal consistency (Cronbach’s α) was 0.70 for the PBC nurturance subscale ($M = 3.4$, $SD = .4$) and 0.72 for the discipline subscale ($M = 1.2$, $SD = .2$).

Parenting Scale (PS). Mothers completed the Parenting Scale (PS; Arnold, O’Leary, Wolff, & Acker, 1993), a measure of dysfunctional parenting. PS items include a simple sentence stem and a series of checkboxes anchored by one effective and one dysfunctional parenting behaviour. Parents endorse where they fall along the continuum between the effective and dysfunctional parenting behaviours. Although a three-factor structure for the PS was originally supported (verbosity, over-reactivity, laxness; Arnold et al., 1993), subsequent studies of the structure of the Parenting Scale have supported a two-factor structure (over-reactivity, laxness; Rhoades & O’Leary, 2007). A total score (“PS total”), over-reactivity (e.g., “When I’m upset or under stress I am picky and on my child’s back”) score, and laxness (e.g., “I threaten to do things that I know I won’t actually do”) score were calculated. The PS total score was the mean of all PS items. PS over-reactivity and laxness scores were the mean of all items in each of those subscales. Thus the lowest possible PS score (total or subscale) was 1 and the highest possible score was 7. Higher scores were indicative of more dysfunctional parenting. In the present sample, the internal consistency (Cronbach’s α) was 0.83 for the PS total scale ($M = 2.7$,

$SD = .6$), 0.76 for the over-reactivity subscale ($M = 2.5$, $SD = .8$), and 0.80 for the laxness subscale ($M = 2.4$, $SD = .8$).

Depression Anxiety Stress Scale- Short Form (DASS-21). The DASS-21 (Lovibond & Lovibond, 1995) is a measure of psychological adjustment. It has established reliability and validity in non-clinical adult samples (Henry & Crawford, 2005). Mothers rated DASS-21 items on a 4-point scale from 1 (“not at all”) to 4 (“most of the time”). Higher scores indicate greater symptoms of anxiety, depression, and stress and poorer overall mental health. In the present sample, Cronbach’s alpha was 0.81 for the total score ($M = 1.5$, $SD = .3$), 0.82 for the depression subscale ($M = 1.4$, $SD = .4$), 0.66 for the anxiety subscale ($M = 1.3$, $SD = .3$), and 0.80 for the stress subscale ($M = 2.4$, $SD = .7$).

Parental Stress Scale (PSS). The PSS (Berry & Jones, 1995) is a measure of parental stress, demonstrating high reliability and good construct validity in its original validation sample. The stressors and rewards subscales of the PSS were used to measure mothers’ perceptions of their children as sources of stress and reward, respectively. Mothers rated PSS items on a 5-point scale from 1 (“strongly disagree”) to 5 (“strongly agree”). Higher scores indicate greater parenting stress and greater parenting rewards. In present sample, Cronbach’s alpha was 0.74 for the stress subscale ($M = 2.4$, $SD = .7$) and 0.83 for the rewards subscale ($M = 4.1$, $SD = .3$).

Parenting Stress Index (PSI). The short-form of the PSI (PSI-SF; Abidin, 1995) is a widely used measure of parenting stress, moderately correlated with the PSS (Berry & Jones, 1995). The PSI-SF has demonstrated reliability and validity, as demonstrated through significant associations between PSI-SF subscales and measures of parent

psychopathology and observed parent-child interactions (Haskett, Ahern, Ward, & Allaire, 2006). The parental distress and negative parent-child interaction items of the PSI-SF were used to measure mothers' perceptions of distress related to parenting and mothers' perceptions of problematic interactions with their children. Mothers rated PSI items on a 5-point scale from 1 ("strongly disagree") to 5 ("strongly agree"). Cronbach's alpha in the present sample was 0.88 for the parental distress subscale ($M = 2.2$, $SD = .8$) and 0.8 for the negative parent-child interaction subscale ($M = 1.3$, $SD = .4$).

Iowa Fatigue Scale (IFS). The IFS (Hartz, Bentler, & Watson, 2003) is a measure of general fatigue. It demonstrated excellent reliability and validity in the original validation sample (Hartz et al., 2003) and has recently been used to examine the relationship between fatigue in mothers and children's sleep (Meltzer & Mindell, 2007). Mothers rated IFS items on a 5-point scale from 1 ("not at all") to 5 ("extremely"). The IFS score was the mean of all 11 IFS items, resulting in a possible maximum subscale score of 5. Higher scores indicate greater symptoms of fatigue. In the present sample, Cronbach's alpha for the IFS was 0.89 ($M = 2.8$, $SD = .7$).

Dysfunctional Attitudes and Beliefs about Sleep- Short Form (DBAS-10). The DBAS-10 is a short form version of the Dysfunctional Attitudes and Beliefs about Sleep Scale (Morin, 1994), a measure of dysfunctional sleep-related cognitions. The consequences of insomnia items of the DBAS-10 (Edinger & Wohlgemuth, 2001; Espie, Inglis, Harvey, & Tessier, 2000) were used to measure mothers' beliefs about the immediate negative consequences of inadequate sleep. Mothers rated DBAS-10 items on a 5-point scale from 1 ("strongly disagree") to 5 ("strongly agree"). Higher scores

indicate more dysfunctional beliefs about the immediate effects of inadequate sleep. Cronbach's alpha was 0.78 in the present sample ($M = 3.39$, $SD = .82$).

Night-waking Vignettes Scale (NVS). The Night-waking Vignettes Scale (NVS; Coulombe, 2010c) is a measure of parents' agreement with four night-waking strategies (for a similar measure for use with parents of infants, see Sadeh, Flint-Ofir, Tirosh, & Tikotsky, 2007). Parents are presented with eight vignettes describing different night-waking scenarios, each followed by a limit-setting, active comforting, rewards, and punishment parenting behaviour (NVS items). Parents are asked how much they agree (on a 6-point scale, "No, definitely disagree" to "Yes, definitely agree") with each behaviour given the scenario described in the vignette. The NVS vignettes describe night-waking behaviours that may be enacted by 2- to 5-year-olds (vs. infants) and were written from clinical experience and interviews conducted with parents (Coulombe & Reid, 2006). Vignettes were written to reflect a range of demanding child behaviours (e.g., child leaves room, child is emotional, child is non-compliant), including making different types of night-waking requests (e.g., child asks for a drink [an instrumental request], child asks for a cuddle [a comfort request]). Cronbach's alpha for the NVS subscales ranged from .74 to .91 (agreement with limit-setting [$M = 3.62$, $SD = .86$] $\alpha = .74$, agreement with active comforting [$M = 3.18$, $SD = .89$] $\alpha = .79$, agreement with rewards [$M = 3.38$, $SD = 1.21$] $\alpha = .91$, agreement with punishment [subscale score $M = 2.31$, $SD = .87$] $\alpha = .77$). NVS subscale scores were the mean of subscale items. Subscales scores could range from a minimum of 1 to a maximum of 6. Higher scores reflect greater agreement with the night-waking strategy.

Parental Night-waking Thoughts and Affect Questionnaire (PNTQ). The PNTQ (Coulombe, 2010d) measures four types of thoughts and affect related to night-waking with their preschool-aged children: Positive thoughts about limit-setting ($M = 3.1$, $SD = 1.5$; $\alpha = .68$), concerns about limit-setting ($M = 3.8$, $SD = 2.2$; $\alpha = .84$), negative affect related to night-waking ($M = 3.6$, $SD = 1.8$; $\alpha = .87$), and positive thoughts about active comforting ($M = 3.8$, $SD = 2.1$; $\alpha = .85$). Mothers rated each item on a 9-point ratio-based rating scale according to how often the thought or feeling occurs to them when their child wakes at night (“never” to “all of the time”). Higher scores represent greater frequency with which the thoughts or affect are experienced during night-waking episodes.

Children’s Night-waking as an Influence on Parents’ Night-waking Strategies.

Modified Infant Sleep Questionnaire (ISQ). The ISQ (Morrell, 1999b) was developed as a measure of infant sleep and sleep behaviour and has been adapted for use with parents of preschool-aged children (DiLeo, Lewis, & Taliaferro, 2005). Two items from the ISQ were used to measure the frequency of children’s night-waking: a) the number of nights children woke per week (“none”, “less than once a week”, “1 night a week”, to “7 nights a week”) and b) the number of times each night children woke and needed comforting (“does not wake”, “once a night”, to “5 or more times per night”); these items were multiplied to provide an estimate of the number of night-wakings per week (“frequency”). Individual ISQ items were used to measure: a) the average duration of night-wakings (“duration”; “less than 10 minutes”, “10 to 20 minutes”, to “1 hour or

longer”) and b) whether mothers thought their child had a sleep problem (“perception of sleep problem”; “no”, “yes, mild” “yes, moderate”, “yes, severe”).

Analyses

Preliminary Bivariate Analyses.

In order to identify the best predictors of mothers’ night-waking strategy scores, bivariate associations (Pearson correlations) between potential influences on mothers’ night-waking strategies and NSS limit-setting, active comforting, rewards, punishment, and routines scores were examined. To permit comparisons of potential influences between and across night-waking strategies, variables examined in bivariate analyses were consistent across strategies. Based on the results of these analyses, unique potential determinants for each strategy were identified ($p < .05$ level) and carried forward into multiple regressions.

Multiple Regressions Predicting Mothers’ NSS Strategy Scores.

A series of five multiple regressions (one per strategy) was conducted, predicting mothers’ self-reported night-waking strategy use (i.e., NSS limit-setting, active comforting, rewards, punishment, and routines). When multiple potential determinants from the same measure were identified, either total scores or subscale scores (but not both) were used in analyses. This reduced the number of predictors in analyses and addressed potential multicollinearity concerns associated with highly correlated predictors. When the total score and all subscales for a given measure were significantly bivariately associated with an NSS strategy, the total score was used, unless a subscale appeared to be a more promising predictor; the magnitude of the association was used to make this judgment. When the total score and one or more, but not all, subscales were

significantly associated with a NSS strategy, only the subscale scores were entered in regressions. All variables were entered in the model at the same time and the variance accounted for by the regression equation (R^2) was examined along with the significance of each variable in the model.

Results

Preliminary Bivariate Analyses

Table 6.1 presents the results of the bivariate regressions. The following variables were significantly associated with limit-setting and were carried forward into multivariate analyses: conduct problems, activity requests (CNBS), agreement with limit-setting (NVS), agreement with active comforting (NVS), positive thoughts about limit-setting (PNTQ), concerns about limit-setting (PNTQ), and night-waking frequency.

The following variables were significantly associated with active comforting and were carried forward into multivariate analyses: getting out of bed (CNBS), comfort requests (CNBS), activity requests (CNBS), agreement with limit-setting (NVS), agreement with active comforting (NVS), negative affect related to night-waking (PNTQ), positive thoughts about active comforting (PNTQ), concerns about limit-setting (PNTQ), night-waking frequency, and mothers' perceptions of their children's sleep as problematic.

Table 6.1

Correlations between NSS subscales and potential child-level determinants of parents' night-waking strategies

	Night Waking Strategies (NSS)				
	Limit- setting	Active comforting	Rewards	Punishment	Routines
Child demographics					
Child age	-.08	.09	.22**	.08	.14
Child sex	-.10	.07	-.03	-.12	.04
Strengths and Difficulties Questionnaire (SDQ)					
Hyperactivity	.10	-.04	-.00	.12	-.13
Conduct problems	.15*	-.09	.06	.34*	-.00
Emotional problems	.10	.07	.08	.10	-.04
Children's Night-waking Behaviour Scale (CNBS)					
CNBS behaviour items					
Calls out	-.04	.13*	-.02	.12	-.04

Gets out of bed	.01	.18*	.21*	.03	.04
CNBS request subscales					
Activity	.19*	.16*	.22*	.24*	-.22*
Fear	.07	.08	.29*	.18*	.00
Comfort	-.04	.61*	.22*	.10	.06
Instrumental	.07	-.12	.23*	.24*	.05
<hr/>					
Socioeconomic Status					
Maternal educational attainment	-.06	-.09	-.17*	-.15*	.21*
Family income	-.09	.09	-.02	-.07	.12
Education x income	-.09	.02	-.11	-.13	.20*
<hr/>					
Depression Anxiety Stress Scale-21 (DASS-21)					
Depression	.10	-.05	.00	.20*	-.11
Anxiety	.11	-.01	.10	.14*	-.20*
Stress	.11	-.04	.06	.20*	-.10
Total score	.12	-.04	.06	.22*	-.15*

Parental Stress Scale (PSS)						
Stressors		-0.00	-0.02	-.12*	.10	-0.03
Rewards		-0.03	.08	.15*	-0.06	.03
Parenting Stress Index (PSI)						
Distress		.10	-0.03	.04	.23*	-.14*
Negative parent-child interaction		.06	.02	-.02	.25*	-.11
Parent Behavior Checklist						
Discipline		.11	-0.03	.14*	.38*	-.11
Nurturance		-0.06	.06	.04	-.18*	.25*
Expectations		.05	.02	.26*	.15*	.06
Parenting Scale						
Over-reactivity		.08	-0.03	.03	.29*	-.17*
Laxness		-0.04	.08	.06	.22*	-.37*
Total		.00	.05	.07	.27*	-.30*
Iowa Fatigue Scale						

Fatigue	.04	.04	.13*	.28*	-.11
Dysfunctional Beliefs and Attitude about Sleep	.01	.01	.02	.16*	-.07
Scale-10 (DBAS-10)					
Night-waking Vignettes Scale (NVS)					
Agreement limit-setting	.26*	-.27*	.07	.12	.14
Agreement active comforting	-.25*	.46*	-.08	-.06	-.22*
Agreement rewards	-.06	.06	.34*	.14*	-.05
Agreement punishment	.13	-.09	.22*	.41*	-.14
Parental Cognitions about Night-waking					
Questionnaire (PCNQ)					
Agreement with limit-setting	.49*	-.07	.09	.14	-.02
Resistance to limit-setting	-.16*	.24*	-.00	.05	-.14*
Negative affect	.02	.21*	.18*	.43*	-.14
Parental reinforcement	-.09	.30*	.04	-.06	-.09
Characteristics of Night-waking episodes					

Infant Sleep Questionnaire (ISQ)

Frequency of waking	-.14*	.34*	.13	-.02	-.10
Duration	.11	.02	.00	.02	-.14*
Perception of child's sleep	.08	.22*	.30*	.13	-.17*

Note: $p < .05$; two-tailed

The following variables were significantly associated with mothers' use of rewards and were carried forward into multivariate analyses: child age, getting out of bed (CNBS), comfort requests (CNBS), activity requests (CNBS), instrumental requests (CNBS), fear requests (CNBS), maternal education, parenting expectations, discipline, parenting as rewarding, parenting stressors, fatigue, agreement with rewards (NVS), agreement with punishment (NVS), negative affect related to night-waking (PNTQ), and mothers' perceptions of their children's sleep as problematic.

The following variables were significantly associated with mothers' use of punishment and were carried forward into multivariate analyses: conduct problems, activity requests (CNBS), fear requests (CNBS), instrumental requests (CNBS), maternal education, maternal mental health, parenting expectations, discipline, nurturance, dysfunctional parenting, parenting distress, negative parent-child interactions, fatigue, dysfunctional beliefs about sleep, agreement with rewards (NVS), agreement with punishment (NVS), and negative affect related to night-waking (PNTQ).

The following variables were significantly associated with mothers' use of routines and were carried forward into multivariate analyses: SES, anxiety, parental distress, nurturance, laxness, agreement with active comforting (NVS), and concerns about limit-setting (PNTQ).

Multiple Regressions Predicting Mothers' NSS Scores

The results of the multiple regressions predicting mothers' NSS strategy scores are presented in Tables 6.2 through 6.6. The regression predicting limit-setting (Table 6.2) accounted for 30% of the variance in limit-setting scores ($R^2 = .30$, $F = 12.13$, $p < .001$). Within the regression equation, however, only children's activity requests ($\beta = .21$)

and positive thoughts about limit-setting were significant predictors of limit-setting scores ($\beta = .45$).

The regression predicting active comforting (Table 6.3) accounted for 48% of the variance in active comforting scores ($R^2 = .48$, $F = 17.81$, $p < .001$). Within the regression equation, children's requests for comfort ($\beta = .45$), mothers' agreement with active comforting ($\beta = .22$), and mothers' perception of their children's sleep as problematic ($\beta = .32$), were significant predictors of active comforting scores.

The regression predicting rewards (Table 6.4) accounted for 34% of the variance in reward scores ($R^2 = .34$, $F = 6.43$, $p < .001$). Within the regression equation, agreement with rewards ($\beta = .26$) and mothers' perceptions of children's sleep as problematic ($\beta = .25$) were significant predictors of reward scores.

The regression predicting punishment (Table 6.5) accounted for 42% of the variance in punishment scores ($R^2 = .42$, $F = 7.58$, $p < .001$). Within the regression equation, conduct problems ($\beta = .15$), instrumental requests ($\beta = .14$), discipline ($\beta = .14$), agreement with punishment ($\beta = .29$), and negative affect related to night-waking ($\beta = .32$) were significant predictors of punishment scores.

Table 6.2

Multiple regression examining predictors of parents' use of limit-setting on the Night-waking Strategies Scale

Predictor	β	t	Sig
Child-level			
Conduct problems (SDQ)	.04	.73	.46
Activity requests (CNBS)	.21	3.30	.001
Parent-level			
Agreement with limit-setting (NVS)	-.02	-.28	.78
Agreement with comfort (NVS)	-.12	-1.56	.12
Positive thoughts about limit-setting (PNTQ)	.45	6.16	.001
Concerns about limit-setting (PNTQ)	-.01	-.12	.90
Characteristics of night-waking			
Frequency of waking (ISQ)	-.09	-1.50	.14

Note: SDQ = Strengths and Difficulties Questionnaire, CNBS = Children's Night-waking Behaviour Scale, PNTQ = Parents' Night-waking Thoughts and Affect Questionnaire, ISQ = Infant Sleep Questionnaire

Table 6.3

Multiple regression examining predictors of parents' use of active comforting on the Night-waking Strategies Scale

Predictor	Beta	t	Sig
Child-level			
Out of bed (CNBS)	-.01	-.22	.83
Activity requests (CNBS)	-.05	-.85	.40
Comfort requests (CNBS)	.45	7.26	.001
Parent-level			
Agreement with limit-setting (NVS)	-.03	-.38	.71
Agreement with comfort (NVS)	.22	3.27	.001
Concerns about limit-setting (PNTQ)	-.05	-.76	.45
Negative affect (PNTQ)	.05	.69	.49
Positive thoughts about active comforting (PTNQ)	.12	1.90	.06
Characteristics of night-waking			
Frequency of waking (ISQ)	.13	2.18	.03
Perception of child's sleep as problematic (ISQ)	.13	2.04	.04

Note: SDQ = Strengths and Difficulties Questionnaire, CNBS = Children's Night-waking Behaviour Scale, NVS = Night-waking Vignettes Scale, PTNQ = Parents' Night-waking Thoughts and Affect Questionnaire, ISQ = Infant Sleep Questionnaire

Table 6.4

Multiple regression examining predictors of parents' use of rewards on the Night-waking

Strategies Scale

Predictor	Beta	t	Sig
Child-level			
Child age	-.01	-.15	.88
Out of bed (CNBS)	.04	.65	.52
Activity requests (CNBS)	.06	.89	.37
Fear requests (CNBS)	.14	1.89	.06
Comfort requests (CNBS)	.11	1.52	.13
Instrumental requests (CNBS)	.07	1.02	.31
Parent-level			
Parental rewards (PSS)	.12	1.81	.07
Expectations (PBC)	.10	1.20	.23
Discipline (PBC)	.12	1.81	.72
Agreement with rewards (NVS)	.26	3.84	.001
Agreement with punishment (NVS)	.11	1.53	.13
Negative affect (PNTQ)	-.07	-.89	.37
Characteristics of night-waking			
Perception of child's sleep as problematic (ISQ)	.25	3.36	.001

Note: PSS = Parental Stress Scale, PBC = Parent Behaviour Checklist, CNBS = Children's Night-waking Behaviour Scale, NVS = Night-waking Vignettes Scale, PNTQ = Parents' Night-waking Thoughts and Affect Questionnaire, ISQ = Infant Sleep Questionnaire

Table 6.5

Multiple regression examining predictors of parents' use of punishment on the Night-waking Strategies Scale

Predictor	Beta	t	Sig
Child-level			
Conduct problems (SDQ)	.15	2.33	.02
Activity requests (CNBS)	.02	.34	.74
Fear requests (CNBS)	.00	.07	.95
Instrumental requests (CNBS)	.14	2.10	.04
Parent-level			
Mothers' education	-.04	-.64	.52
Maternal mental health (DASS-21 Total)	-.10	-1.14	.26
Fatigue (IFS)	.13	1.55	.12
Distress (PSI)	-.00	-.06	.95
Negative parent-child interactions (PSI)	.01	.22	.82
Dysfunctional parenting (PS Total)	.02	.22	.82
Expectations (PBC)	-.02	-.27	.79
Discipline (PBC)	.14	2.04	.04
Nurturance (PBC)	-.04	-.64	.53
Concerns about immediate effects of inadequate sleep (DBAS-10)	-.09	-1.36	.18
Agreement with rewards (NVS)	-.04	-.61	.54
Agreement with punishment (NVS)	.29	4.12	.001

Negative affect (PNTQ)	.32	4.43	.001
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Note: SDQ = Strengths and Difficulties Questionnaire, CNBS = Children's Night-waking Behaviour Scale, DASS-21 = Depression Anxiety Stress Scale-21, IFS = Iowa Fatigue Scale, PSI = Parenting Stress Index, PS = Parenting Scale, PBC = Parent Behaviour Checklist, DBAS-10 = Dysfunctional Beliefs and Attitudes about Sleep -10, NVS = Night-waking Vignettes Scale, PNTQ = Parents' Night-waking Thoughts and Affect Questionnaire, ISQ = Infant Sleep Questionnaire

Table 6.6

Multiple regression examining predictors of parents' use of routines on the Night-waking

Strategies Scale

Predictor	Beta	t	Sig
Parent-level			
Socio-economic status (SES)	.12	1.76	.08
Anxiety (DASS-21)	-.09	-1.22	.22
Distress (PSI)	.05	.66	.51
Laxness (PS)	-.28	-3.62	.001
Nurturance (PBC)	.15	2.14	.03
Agreement with active comforting (NVS)	-.12	-1.62	.11
Concerns about limit-setting (PNTQ)	-.07	-.99	.32

Note: SES = Socioeconomic Status, DASS-21 = Depression Anxiety Stress Scale-21, PSI = Parenting Stress Index, PS = Parenting Scale, PBC = Parent Behaviour Checklist, NVS = Night-waking Vignettes Scale, PNTQ = Parents' Night-waking Thoughts and Affect Questionnaire.

The regression predicting routines (Table 6.6) accounted for 18 % of the variance in routines scores ($R^2 = .18$, $F = 6.88$, $p < .001$). Within the model, nurturance ($\beta = .15$) and laxness ($\beta = -.28$) were significant predictors of routine scores.

Discussion

The present study identified a number of potential influences on parent's night-waking strategies which should prove fruitful sources of further investigation. To date, little is known in the published literature about factors associated with night-waking strategy use among parents of preschool-aged children. A greater understanding of parents' night-waking strategies and their determinants may have implications for improving treatment preparation and adherence in clinical populations (Sadeh, 2005; Sadeh et al., 2007). In order to focus attention on the most promising variables for further research only the significant results from multivariate analyses will be discussed in the following paragraphs.

Predicting Limit-Setting among Parents of Preschool-aged Children

To my knowledge no published study has systematically examined child- and parent-level factors that predict limit-setting use among parents of preschool-aged children. The present investigation is an essential first step in identifying factors that may promote limit-setting in this population. In the present study, positive thoughts about limit-setting and children's activity requests were significant predictors of limit-setting in multivariate analyses. It may be that parents feel comfortable resisting requests that are clearly unreasonable, such as requests to play or watch television instead of sleeping (activity requests; Coulombe, 2010a,c). These child behaviours may therefore elicit limit-

setting responses. Parents' agreement with limit-setting has been found to be significantly higher in vignettes depicting activity requests than in vignettes depicting other types of requests (i.e., comfort, instrumental) (Coulombe, 2010c).

Positive thoughts about limit-setting likely play a different role in limit-setting use. I believe that these thoughts support limit-setting attempts. Previous work by Sadeh et al. (2007) with parents of infants suggests that parents' agreement with limit-setting may be insufficient to enact limit-setting successfully⁷. Although the use of limit-setting was not examined, parents of infants of sleep problems reported both high agreement with limit-setting and high concerns about limit-setting use (Sadeh et al., 2007). One interpretation of Sadeh et al.'s findings is that negative thoughts about limit-setting interfere with parents' ability to enact limit-setting, resulting instead in active comforting and poor infant sleep. It is my contention, based on the results of the present study, that an opposite process occurs among parents who are able to enact limit-setting: Parents who experience positive thoughts about limit-setting are able to persist in limit-setting efforts. The extent to which these positive thoughts represent reflections of underlying agreement with limit-setting or active attempts at positive self-talk about limit-setting is unclear. Future research should examine the role of parents' positive thoughts about limit-setting in the use and success of limit-setting efforts. Should the current findings be replicated, interventions that educate parents about the use of positive thoughts during limit-setting may improve treatment adherence. A focus on positive statements may also

⁷ This was also the case in the present study: although associated with limit-setting in bivariate analyses, agreement with limit-setting no longer predicted limit-setting use when positive thoughts about limit-setting were also considered.

reduce parents' distress during night-waking interventions by directing attention away from feared negative consequences of limit-setting.

Predicting Active Comforting among Parents of Preschool-aged Children

In the present study children's comfort requests, mothers' agreement with active comfort, and mothers' perceptions of children's sleep as problematic significantly predicted mothers' use of active comforting. Although the finding that children's comfort requests were associated with mothers' active comforting is relatively intuitive, the present study is the first to clearly distinguish between children's requests for comfort and other types of behaviour (e.g., instrumental requests), general night-waking, or global sleep problem scores (*c.f.*, Johnson & McMahon, 2008). These results support transactional models of night-waking in young children (e.g., Morrell & Steele, 2003; Sadeh & Anders, 1993) and extend these models to include the principle that specific night-waking behaviours in children (e.g., requests for comfort) will elicit, and likely be reinforced by, specific and related night-waking behaviours in parents (e.g., active comfort).

The finding that mothers' agreement with active comforting, rather than their thoughts and feelings during night-waking episodes, predicted their use of active comforting is interesting. It is in notable contrast to the findings for limit-setting, where parents' thoughts during night-waking episodes were better predictors of their behaviours than their beliefs. This finding supports research by Ramos et al. (2007) that suggests that, for some parents, co-sleeping - a specific form of active comforting - is an intentional expression of parenting beliefs. In the Ramos et al., study, however, parents who intentionally co-slept with their children viewed their children's sleep as less

problematic than parents who did not intentionally co-sleep (i.e., who co-slept in response to children's night-waking). In the present study, greater active comforting was predicted by higher perceptions of children's sleep as problematic. I believe that these seemingly incompatible predictors indicate the presence of at least two types of parents in my sample: a) parents who intentionally active comfort in response to children's comfort requests, and b) parents who provide active comforting in response to children's comfort requests but would prefer not to, and thus see their children's sleep in a more negative light (i.e., as a problem). This interpretation is compatible with Ramos et al.'s (2007) distinction between intentional and reactive co-sleepers. Further research is required to better understand these associations and to explore the idea that active comforting, in particular, may be multiply determined.

The regression approach used in the present chapter resulted in a single regression equation, essentially treating parents who engage in active comforting as a single homogenous group. Future research should consider using clustering approaches to data analysis, which are better suited to exploring the hypothesis that multiple types of parents who engage in active comforting exist. Should such groups be observed, clinical treatment recommendations should be tailored accordingly. Parents who active comfort as part of their parenting beliefs may have distinct patterns of help-seeking, motivations, and expectations when discussing their children's sleep with care providers. These patterns may be very different from parents who view their children's sleep as problematic and provide active comfort in response to this perception. The former group of parents may not initiate help-seeking for their children's sleep and would likely be opposed to offers of intervention. The latter group may be quite responsive to offers for

intervention but may need assistance and support to address existing barriers to resisting comfort requests.

Predicting Use of Rewards among Parents of Preschool-aged Children

Although rewards are often included in limit-setting interventions, the present dissertation is the first, to my knowledge, to examine the use of rewards as a night-waking strategy among parents of preschool-aged children in the general population. Rewards are a well known method of behaviour change and information about the use of rewards is available through informal avenues, including parenting websites, magazines, and books. Among parents involved in the present research project, mothers' use of rewards was significantly predicted by agreement with rewards and mothers' perception of sleep as problematic. These findings are generally intuitive. It is likely that mothers who view their children's sleep as problematic will be motivated to change this behaviour. Thus, mothers who view their children's sleep as problematic may be more inclined to use rewards than mothers who do not see their children's sleep as problematic. In order to use rewards, however, mothers must agree that rewards are appropriate. In my clinical experience, parents often need coaching to engage in reward systems with their children. Many parents express concerns that children who receive rewards will eventually refuse to engage in behaviours that are not accompanied by some form of compensation.

The question of whether rewards - outside of the context of formal intervention - are successful at reducing night-waking in the general population requires investigation. Longitudinal studies are best suited to this type of research question. This question is clinically quite relevant, as parents who have been unsuccessful in using rewards outside

of the context of formal intervention may be reluctant to attempt this strategy when formal intervention is offered.

Predicting Punishment among Parents of Preschool-aged Children

In the present investigation, children's conduct problems, instrumental requests, mothers' general use of discipline, agreement with punishment, and negative affect experienced during night-wakings significantly predicted punishment. These findings were generally consistent with what would be predicted from the day-time literature (Bell, 1968; Belsky, 1984; Dix, 1991), although once more proximal variables specific to night-waking were considered, general and parenting stress and mental health did not significantly predict punishment at night. These factors may express themselves by contributing to mothers' negative affect during night-waking episodes, which in turn contributes to punishment.

The significance of children's conduct problems and parents' use of discipline in the regression equation provide additional support for a transactional nature of night-waking. This finding also supports the hypothesis that children who are challenging during the day present similar challenges at night. Unfortunately, the present research also suggests that parents who engage in more negative parenting during the day behave similarly in response to challenging behaviour that occurs at night. Thus, for children and their parents who are engaged in this coercive cycle, little respite is apparent.

Professionals working with this population to alter day-time struggles should enquire about parent-child interactions during the night and vice versa. Research examining the effects of altering problematic interactions during the day should also explore night-time outcomes and vice versa.

The practical significance of instrumental requests to the prediction of punishment also requires investigation, and may lie in parents' interpretation of this type of request. Parents may view instrumental requests as unnecessarily disruptive or they may feel that a child should be able to meet these needs on their own. For many of the children in my sample, this expectation may be unreasonable without parental planning and preparation at bed-time. Such proactive parenting practices may be lacking in parents who engage in punitive strategies. Punitive parenting is also often characterized by unreasonably high expectations (Brenner & Fox, 1999). For example, a 3-year-old preschooler cannot be expected to get themselves at drink from the kitchen at night, but could be expected to drink from a sippy cup left for them on their bedside table.

Predicting Routines among Parents of Preschool-aged Children

Parents' use of bed-time routines was also associated with their day-time parenting; greater use of routines was predicted by higher levels of nurturance and lower levels of laxness. This fits nicely with research by Hall, Zubrick, Silburn, Parsons, and Kurinczuk (2007), who found that lax parenting and poor sleep rhythmicity- which is conceptually consistent with routines (e.g., going to bed at same time, getting about the same amount of sleep each day)- predict behavioural sleep problems among preschool-aged children (Hall et al., 2007). The use of routines, separate from limit-setting interventions, has only recently received research attention. The present study supports the pursuit of further research in this area.

Limitations and Future Directions

The purpose of the present study was to identify potential influences on parents' night-waking strategies, providing the first multivariate tests of a model of night-waking

among preschool-aged children (Figure 6.1). Although a range of factors was explored, not all variables identified in the present model were able to be considered in the present study. For example, temperament and attachment were not examined in the present study. Difficult child temperament has been associated with more difficulty parenting and less optimal day-time parenting strategy use (Belsky, 1984) and with increased sleep problems and/or night-waking (e.g., Owens-Stively, Frank, Smith, Hagino, Spirito, Arrigan et al., 1997). Similarly, attachment security (Morrell & Steele, 2003) has been identified as being important to an understanding of sleep in young children. Assessment of these variables was not feasible within the context of study methodologies and would have increased participant burden by requiring parent-child observation protocols or the completion of additional, lengthy questionnaires. For example, meaningful assessment of attachment and temperament would have required parent-child observation protocols. Future investigations may benefit from exploring these constructs.

Mothers in our sample were primarily Caucasian and well-educated, from two-parent families. Sleep and problems may be influenced by cultural, societal, and environmental factors (e.g., Jenni & O'Connor, 2005; Mindell, Sadeh, Koyhama, & How, 2010) and future investigations should include greater sampling diversity, including greater recruitment of parents who intentionally active comfort. The potential for overfitting, given the number of predictors and analyses conducted with this sample (Babyak, 2004), is also a limitation of the present study. Results should be viewed cautiously. Further investigation is required. As with many studies in the pediatric sleep literature, the reliance on mothers' ratings only is a limitation of the present study (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). The generalizability and replicability of the present

study, therefore, is a concern. Future investigations would benefit greatly from multi-method assessment, including objective measurement of sleep and parenting. Further, given the cross-sectional nature of the present study the direction of the relationships among variables cannot be assessed. Longitudinal studies and studies explicitly examining reciprocal patterns of parent-child interactions during night-wakings could make substantial contributions to the literature.

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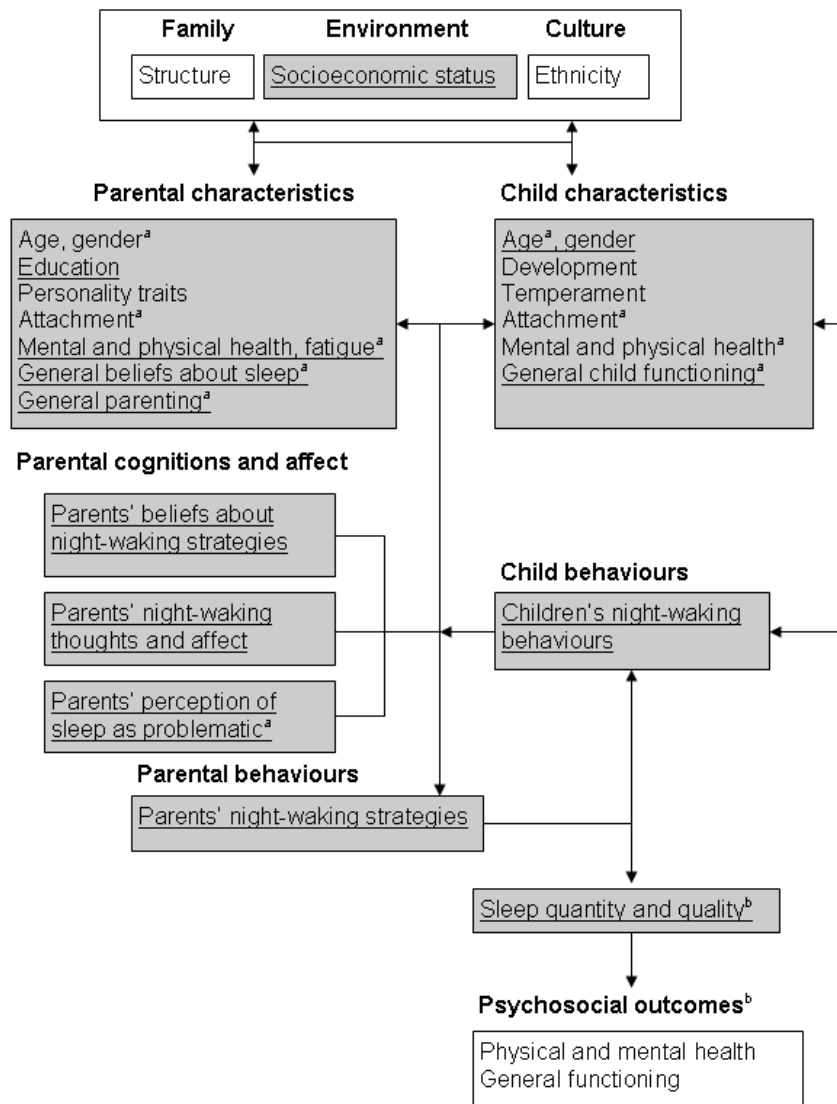
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Chapter 7: Measuring Parents' Thoughts and Strategies to Help Children Sleep Through the Night.

To the best of my knowledge, the present dissertation is the most comprehensive investigation of the night-waking strategies of parents of preschool-aged children conducted to date. It is an essential first step in the development and testing of a transactional model of night-waking in young children (Figure 7.1). The combined results of the four measurement development manuscripts (Chapters 2 through 5), the model-development chapter (Chapter 6), and the pilot work (Coulombe & Reid, 2006) related to this research program suggest that, although useful, models of night-waking among preschool-aged children (e.g., Johnson & McMahon, 2008) derived primarily from models of sleep in infants (e.g., Morrell & Steele, 2003; Sadeh & Anders, 1993) are insufficient. They fail to capture the complexity and challenge of parenting an active, mobile, verbal young child who wakes at night and neglect to consider the range of behaviours, thoughts, and affect that children's behaviours may elicit in parents.

I believe that the single most important contribution of the present dissertation is the careful consideration of the role of children's behaviour in parents' night-waking strategy use. As such, I also believe that the most important contributors to the present dissertation are the parents who participated in the pilot studies for this research program, including those who participated in a video-observation study that has not been presented as part of this work, and the countless parents with whom I have worked clinically or discussed this work at presentations, conferences, and cocktail parties.

Figure 7.1. A model of night-waking among preschool-aged children, adapted from “Risk factors and consequences of early childhood dyssomnias: New perspectives”, by Touchette, E., Petit, D., Tremblay, R.E., and Montplaisir, J.Y. 2009, *Sleep Medicine Reviews*, 13, 355-361. In this model, contextual factors at the level of family, environment and culture influence both parent- and child-level factors are associated with night-waking. These contextual factors influence parents’ cognitions and affect related to night-waking, parental behaviours (i.e., night-waking strategies) in response to night-waking, and children’s night-waking behaviours. Characteristics of children’s night-waking episodes (e.g., frequency and duration) influence the sleep quantity and quality of both parents and children, affecting numerous outcomes including physical and mental health and functioning. Additions to the model that were not a central focus of the dissertation at hand are designated with the superscript “a”. Components of the model also present in Touchette et al.’s (2009) model, but renamed in the presented model are designated with the superscript “b”. Additions to the model that are central to the present dissertation are indicated by a shaded text-box. Variables tested directly in the present dissertation are underlined.



It was these parents who explained the difference between ignoring an infant in a crib and a young verbal child who can call out and tearfully plead for parental presence. It was also these parents who patiently explained that you can't ignore a child who has climbed into your bed the same way that you can ignore an infant in her room⁸, although when we adapt infant measures directly this is precisely what we do- treat ignoring as a single construct with a single result (extinction), out of context.

Nothing that these parents told me was ground-breaking. Not only does what they say make intuitive sense – of course, children's behaviour influences their parents' behaviour and of course, parenting a preschooler is different than parenting an infant – a substantial research literature exists to support their statements. For example, Bell (1968) clearly laid out the reciprocal influences of parent and child behaviour, and an entire area of developmental psychology is devoted to the study of how children change over time. The problem is that, to date, many in the pediatric sleep field have worked apart from researchers in parenting, development, and developmental psychopathology. Although notable exceptions exist (e.g., Bates, Viken, Alexander, Beyers, & Stockton, 2002), research conducted regarding what happens during the day has rarely informed research about what happens during night. Thus, although nothing that parents told me was ground-breaking, its application to an understanding of night-waking is unique.

In the remainder of this chapter I discuss one or two key findings associated with each chapter. In the interest of brevity, not all findings will be discussed. As the Chapter 6 discussion directly addresses potential influences on parents' night-waking strategies, it

⁸ In fact, ignoring a child who has crept into your bed would very likely reinforce this behaviour. The intention of ignoring to extinguish unwanted behaviour.

will not be replicated here. General limitations of the present dissertation will be reviewed in the concluding paragraphs.

Key Findings from Chapter 2: The Children's Night-waking Behaviour Scale

The most direct outcome of my conversations with parents is the Children's Night-waking Behaviour Scale (CNBS; Chapter 2). The original purpose of this dissertation was to adapt three measures of infant sleep (the Maternal Cognitions about Infant Sleep Questionnaire [MCISQ], Morrell, 1999; the Parental Interactive Bedtime Behaviour Scale [PIBBS], Morrell & Cortina-Borja, 2002; and the Infant Sleep Vignettes Interpretation Scale [ISVIS], Sadeh, Flint-Ofir, Tirosh, & Tikotsky, 2007) for use with parents of preschool-aged children. The CNBS was, to be honest, an after thought. As it became clear, however, that the MCISQ, PIBBS, and ISVIS could not be easily adapted, the need for a measure of children's night-waking behaviours became apparent. Despite its humble beginnings, the CNBS that resulted following development and validation procedures is a promising measure, whose brief format may be useful in both research and clinical settings. Particularly interesting was the emergence of an activity subscale, associated with the duration of night-waking, mothers' perceptions of sleep as problematic, symptoms of hyperactivity during the day, and mothers' use of limit-setting. It may be that children who display this form of night-waking have general and pervasive difficulties with activity, arousal, or regulation. Future research exploring the association of this subscale to children's objectively measured sleep and night-waking and day-time activity is being planned.

Key Findings from Chapter 3: The Night-waking Vignettes Scale

In Chapter 3, I presented the Night-waking Vignettes Scale (NVS), a self-report measure of parents' agreement with limit-setting, active comforting, rewards, and punishment in hypothetical scenarios with hypothetical children. As scenarios and children are hypothetical it is designed to be a measure of parents' night-waking beliefs (*c.f.* Sadeh et al., 2007). Parents' beliefs are distinguished from the thoughts they experience during actual night-waking interactions with their own children. Parents' thoughts and affect related to night-waking (Parents' Night-waking Thoughts and Affect Questionnaire, PNTQ) were examined in Chapter 4. The underlying conceptualization of the association between the NVS and PNTQ is cognitive-behavioural, a conceptualization which has not been discussed to this point. Parents' agreement with night-waking strategies (as measured by the NVS) is conceptualized as being analogous to core beliefs. Parents' thoughts related to night-waking (as measured by the PNTQ) are conceptualized as being analogous to automatic thoughts and, for the positive thoughts about limit-setting, coping statements.

The NVS is unique in that it measures parents' agreement with multiple night-waking strategies. No such measure exists for use with parents with preschool-aged children. In my opinion, the most interesting aspect of the NVS is the secondary agreement subscales. Again, without the contribution of parents in my pilot sample I would not have considered the idea that parents' agreement with night-waking strategies would vary according to the behaviour depicted. The finding that parents' agreement with night-waking varies according to children's affect and behaviour could have significant implications for clinical practice. The assumption that parents' general agreement with a

night-waking strategy indicates their agreement with that strategy across scenarios should not be made. For example, parents who indicate that they agree with limit-setting in response to children's requests for comfort may disagree with limit-setting in response to instrumental requests. If they act according to their beliefs, they may wind up extinguishing requests for comfort but shaping multiple and prolonged requests for instrumental interventions.

In terms of future research directions, the NVS may be a useful measure for comparing differences in agreement with night-waking strategies between parents and professionals. Investigations along this line can open up a useful dialogue in the literature about potential barriers to effective interventions and help-seeking. Fundamental and unaddressed conflicts between parents' beliefs about night-waking strategies and professionals' beliefs about night-waking strategies may result in faulty assumptions that can interfere with treatment retention and success. For example, a clinician who agrees with limit-setting across strategies may assume that a parent does also and miss parents' concerns about limit-setting in some situations. Greater understanding of discrepancies between parents' and professionals' beliefs, if they exist, could alert clinicians to the possibility of making such assumptions.

Key Findings from Chapter 4: The Parents' Night-waking Thoughts and Affect Questionnaire

In Chapter 4, I presented a manuscript describing the development and preliminary validation of the Parents' Night-waking and Thoughts and Affect Questionnaire (PNTQ), a measure of parents' thoughts and feelings when children wake at night. The PNTQ is most comparable to the MCISQ (Morrell, 1999) used with parents

of infants. In the context of the larger model presented in Chapter 1 (Figure 7-1), parents' thoughts and affect during night-waking episodes were hypothesized to be the most proximal predictors of parents' night-waking strategies, being influenced, in part, by parents' agreement with night-waking strategies, children's night-waking behaviours, and other parent-level factors such as general mental health and fatigue. Although the full model was not directly tested, the results of Chapter 6 suggest that this hypothesis would be supported for at least two of the four types of thoughts and affect examined: positive thoughts about limit-setting and negative affect.

The positive thoughts about limit-setting subscale is a unique feature of the PNTQ. Neither the MCISQ (Morrell, 1999), nor the adapted version of the MCISQ used with parents of preschool-aged children (Johnson & McMahon, 2008) have a comparable subscale. I believe that the combined results of Chapters 2 through 6 indicate that positive thoughts about limit-setting likely mediate observed associations among mothers' agreement with limit-setting, mothers' use of limit-setting, and children's night-waking. That is, mothers who agree with limit-setting and are able to maintain positive thoughts about limit-setting during night-waking interactions with their children will be able to engage in limit-setting successfully thereby reducing night-waking. In order to test this hypothesis, longitudinal research will be required. Should the hypothesis be supported, the PNTQ could be used in clinical research to evaluate the processes underlying night-waking interventions. As discussed, limit-setting interventions for night-waking are often distressing to parents who may drop out of treatment as a result (Sadeh, 2005). Sadeh et al. (2007) have suggested that cognitive interventions provided to parents as part of limit-

setting interventions may improve treatment adherence and retention. The PNTQ positive thoughts about night-waking subscale could be used to test this recommendation.

A second contribution of the PNTQ to the literature, apart from the measure itself, is the distinction between concerns about limit-setting and negative affect. Examination of the items associated with each subscale suggested that concerns about limit-setting and negative affect measure very distinct constructs: Concerns about limit-setting items were largely child-centered while negative affect items were parent-centered. Examination of the correlations between the subscales and other measures also supported this interpretation. Concerns about limit-setting was uniquely associated with agreement with active comforting, while negative affect was uniquely associated with agreement with limit-setting (Chapter 4). This suggests fundamental differences between the subscales at the level of belief. Further, although both concerns about limit-setting and negative affect were associated with co-sleeping (Chapter 4), only negative affect was associated with punishment (Chapter 6). From a research perspective, the distinction between these subscales suggests that they be treated separately in analyses examining models of night-waking, rather than using a combined “problematic cognitions” score as has been done previously (Johnson & McMahon, 2008). From a clinical perspective, the distinction between these subscales implies that a different treatment approach may be necessary for parents endorsing high concerns about limit-setting than for parents endorsing high negative affect scores. For example, parents endorsing concerns about limit-setting may benefit from limit-setting interventions that include a cognitive component directly addressing and supporting parents through their limit-setting concerns. Motivational techniques focusing on the child-centered benefits of limit-setting (e.g., improved day-

time functioning, improved physical health) may improve treatment adherence and retention. Parents endorsing negative affect, however, may benefit from limit-setting interventions that include greater parent support, including general coping strategies. Motivational techniques focusing on the parent-centered benefits on limit-setting (e.g., improved compliance, fewer negative parent-child interactions, improved parent sleep) may improve treatment adherence and retention. Future research will be required to identify clinically significant scores on each subscale as well as the clinical utility of separate treatment approaches.

Key Findings From Chapter 5: Night-waking Strategies Scale

In Chapter 5, I presented the Night-waking Strategies Scale (NSS), a measure of five night-waking strategies used by parents of night-waking preschool-aged children to help their children sleep through the night: limit-setting, active comforting, reward, punishment, and routines (sleep hygiene practices that prepare children for a relaxing and positive transition to sleep at night). The NSS is comparable to the PIBBS (Morrell & Cortina-Borja, 2002) used with parents of infants. In my opinion, the most important contribution of the NSS was the development and preliminary validation of the limit-setting subscale. Although a limit-setting subscale was present in the original PIBBS (“encouraging autonomy”; Morrell & Cortina-Borja, 2002) when used with parents of preschool-aged children a limit-setting factor did not emerge (Johnson & McMahon, 2008). The lack of a validated measure of limit-setting for use with parents of preschool-aged children is unacceptable given that almost all empirically supported interventions for night-waking involve limit-setting (Crnec, Matthey, & Nemeth, 2010; Sadeh, 2005).

There are difficulties inherent in measuring limit-setting, as seen in the relatively lower reliability and validity statistics for all of the limit-setting subscales included in this dissertation (Chapters 2 through 5). The most salient confound is related to the effectiveness of limit-setting in reducing night-waking. That is, when limit-setting is practiced effectively then night-waking should not be reported by parents⁹. Further, parents who are unaware of night-waking will have no opportunity to limit-set. Thus, it is likely that when limit-setting is reported by parents, they have either recently begun engaging in limit-setting or their limit-setting efforts have not been wholly successful. As a result, associations between limit-setting and night-waking may not be observed in cross-sectional analyses – such as those conducted in the present dissertation. As with the PNTQ thoughts about limit-setting subscale, longitudinal investigations of associations between limit-setting and night-waking will be required. Observational studies that allow researchers to assess the quality and fidelity of parents' limit-setting strategies during night-waking episodes would also be highly beneficial to an improved understanding of limit-setting in the population. From a clinical research perspective, the use of the NSS limit-setting subscale in evaluations of night-waking interventions would validate the assertion that limit-setting itself is an active ingredient in treatment outcomes. This is not always clear as limit-setting is not directly measured and interventions typically include multiple components (e.g., parent education, sleep hygiene; Owens, Palermo, & Rosen, 2002).

⁹ It is important to note that children will still wake during the night, but will return to sleep independently. Thus, for the most part, parents will be unaware that waking has occurred.

An additional contribution to the clinical and research literature was the development and validation of the NSS punishment subscale. Although punishment was rarely endorsed in my sample, endorsement of punishment was not entirely absent. This suggests that further consideration of punishment, and its relationship to night-waking, is required from both a clinical and research perspective. When considered with the NVS agreement with punishment subscale and the PNTQ negative affect subscale, a clear pattern of maladaptive beliefs, thoughts, and behaviours emerges that is consistent with models of maladaptive parenting in the general parenting literature (e.g., Abidin, 1992; Dix, 1991). Clinicians working with parents should be aware of associations between punishment and negative affect and query these behaviours when sleep problems are discussed.

Of all of the subscales presented in this dissertation, the NSS punishment and PNTQ negative affect subscales had the most measures available with which to assess their construct validity. It is interesting to note that some of the most widely researched topics in the general parenting literature – punishment and its determinants – have rarely been investigated in the pediatric sleep literature. The results of the present study support a conceptualization of punishment as a parenting strategy that is determined and enacted across the 24-hour period.

Chapter 6: Influences on Parents' Night-waking Strategies

In Chapter 6, I presented an initial cross-sectional exploration of the associations among key variables proposed in the model presented in this dissertation (Figure 7.1). The emphasis of this chapter was on identifying potential influences on parents' night-waking strategies that can be explored in future investigations. Potential influences were

drawn from the existing pediatric sleep, adult sleep, and parenting literatures. As with the previous summaries of other chapters, I will not re-iterate much of the chapter results or findings here. Rather, I will focus on a brief discussion of how the concepts of multifinality and equifinality from the field of developmental psychopathology may provide a framework for understanding parents' night-waking strategies.

Briefly, the concept of multifinality suggests that a single variable may have multiple outcomes. Consideration of multifinality in relation to parents' night-waking strategies is an important next step in developing clinical and research models with which to guide interventions. For example, agreement with limit-setting displayed multi-finality in that it was associated with two night-waking strategies: limit-setting and punishment (Chapter 5; bivariate analyses in Chapter 6). Limit-setting is a positive and effective night-waking intervention, while punishment is a coercive practice. In the general parenting literature, punishment has been associated with numerous negative child outcomes (e.g., Vostanis, Graves, Meltzer, Goodman, Jenkins, & Brugha, 2006).

Based on the overall pattern of results observed in the present dissertation (Chapters 2 through 6), it appears that multiple factors may be involved in determining how agreement with limit-setting can predict both limit-setting and punishment. These factors include parent-level variables such as parental mental health, child-level variables such as child behaviour, and parents' thoughts and affect during night-waking episodes. The role of parents' positive thoughts about limit-setting in parents' strategy use has been discussed previously. Briefly, I proposed that the path from parents' agreement with limit-setting to their use of limit-setting is mediated by positive thoughts about limit-setting. The most likely explanation for the association of agreement with limit-setting

and punishment, however, is a shared association with agreement with punishment. Agreement with limit-setting did not predict punishment in regressions that also accounted for agreement with punishment (Chapter 6). It is likely that parents who agree with punishment also agree with limit-setting in principle. Punishment may be a way to enforce the limits they believe should be set. Parents who agree with limit-setting but disagree with punishment may be unlikely to use this strategy. The concept of multifinality promotes awareness that agreement with limit-setting should be explored prior to making assumptions about how it will influence behaviour. This awareness can then shape treatment planning and intervention support.

The concept of equifinality suggests that a single outcome may have multiple influences. Active comforting is a good example of equifinality as it pertains to parents' night-waking strategies. In the present study active comforting was associated with multiple variables in bivariate analyses, some of which appeared to be inconsistent with one another. For example, negative affect related to night-waking (PNTQ) and positive thoughts about active comforting (PNTQ) are inconsistent in terms of the affective tone of the items, yet both were associated with active comforting. Similarly, in multivariate analyses agreement with active comforting and mothers' perceptions of their children's sleep as problematic significantly predicted active comforting scores. It may be that contradictory predictors of active comforting may be an effect of heterogeneity among parents in my sample. These parents may represent two distinct pathways to active comforting. The first pathway is influenced by parents' agreement with active comforting. Parents who agree with active comforting may engage in active comforting,

as this strategy is consistent with their beliefs. These parents may experience positive thoughts about active comforting during night-waking episodes.

The second pathway to active comforting may be influenced by a combination of other factors, including concerns about limit-setting that may result in active comforting despite lack of agreement with this strategy. As a result, these parents may endorse greater their children's sleep as problematic. These hypotheses are supported by a recent study by Ramos, Youngclarke, and Anderson (2007) that suggests that two types of parents co-sleep: those who co-sleep intentionally and those who co-sleep reactively. Those who intentionally co-sleep do so as an expression of their belief in co-sleep. These parents do not perceive their children as having sleep problems (Ramos et al, 2007). This is consistent with the first hypothesized pathway to active comforting. The experience of parents who reactively co-sleep, however, may be more consistent with my second hypothesized pathway. The parents co-sleep despite a belief in independent sleep and perceive their children as having sleep problems. Interestingly, both intentional and reactive co-sleepers in the Ramos et al. (2007) displayed similar levels of night-waking.

Limitations

Sampling.

This dissertation is concerned with parents' responses to children's awakenings that disrupt sleep occurring at night (as opposed to during naps), are not secondary to medical or health concerns (e.g., children who are ventilator dependent and require night-time caregiving; Meltzer & Mindell, 2006), come to parents' attention, and involve parental intervention ("night-waking"; Fehlings, Weiss, & Stephens, 2001; Sadeh & Anders, 1993). This dissertation is not exclusively concerned with night-waking that is,

or could be considered to be, clinically significant. Rather, it presents the first essential steps in developing a better understanding of the relationship of parents' responses to night-waking (parents' "night-waking strategies") to children's night-waking in the population (Figure 7.1). Still, a key limitation of the present study is the lack of inclusion of a clinical sample. It is possible that associations between sleep and parenting differ in clinical and community samples (e.g., Owens-Stively, Frank, Smith, Hagino, Spirito, Arrigan, et al., 1997), and comparisons between these groups will be important in future research. Potential effects of sampling on the measures of limit-setting, in particular, have been discussed.

Three other limitations associated with sampling require discussion. First, fathers are an important group to include in future research; mothers and fathers may have different beliefs about children's sleep and exhibit different preferences in night-waking strategies (Sadeh et al, 2007). Second, the project would likely have benefited from greater inclusion of families who intentionally co-sleep; approximately 90% of mothers in the validation sample reported a preference for independent sleep. Third, mothers in our sample were primarily Caucasian and well-educated, and from two-parent families. Sleep and problems may be influenced by cultural, societal, and environmental factors (e.g., Jenni & O'Connor, 2005; Mindell, Sadeh, Koyhama, & How, 2010; Touchette, Petit, Tremblay, & Montplaisir, 2009) and future investigations should include greater sampling diversity. The extent to which the present research is generalizable to other populations is unknown. Parents' expectations and beliefs about children's sleep have been described as being determined by an interaction between biology and culture (Jenni & O'Connor, 2005). Sleeping arrangements, in particular, appear to be largely culturally

determined, with a greater percentage of children from Pan-Caucasian than Pan-Asian countries sleeping independently (Mindell et al., 2010). It is interesting to note, however, that night-waking may have similar prevalence rates across cultures (Jenni & O'Connor, 2005). It is also interesting to note that, across cultures, active parental involvement in young children's sleep (analogous to active comforting; e.g., presence at bedtime, holding, rocking) significantly predicts night-waking (Mindell et al., 2010); active comforting also likely mediates the relationship between co-sleeping and night-waking in cultures in which co-sleeping or room sharing are the norm (Mindell et al., 2010).

The potential for over-fitting, given the number of predictors and analyses conducted with this sample (Babyak, 2004), is also a limitation of the present research; results should be viewed with more caution in this light. Sadeh and colleagues (2007) have also raised concerns about conducting multiple analyses, while acknowledging the need to build the existing literature by presenting exploratory findings. Far fewer analyses were conducted in the Sadeh et al. (2007) study than were conducted in the present dissertation, which includes the development of four measures as well as examinations of the inter-correlations. Again, I highlight the preliminary nature of the present research and its promising clinical and research potential.

Measurement

As with many studies in the pediatric sleep literature (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006), issues related to measurement are limitations of the present research. The internal consistency of most of the CNBS, NVS, PNTQ, and NSS subscales was at least adequate, but not always high, and test-retest reliability was often less than ideal. Few guidelines exist in the pediatric sleep literature with which to assess the

performance of the current measures, however. For example, it is difficult to interpret the one-month test-retest reliability of the NSS when the stability of preschool-aged children's sleep over the course of a month is not known. The stability of sleep among young children and the consistency of parents' sleep strategies has been questioned (Goodlin-Jones, Burnham, Gaylor, & Anders, 2001; Jenni, Zinggeler, Iglowstein, Molinari, & Largo, 2005; Matthey, 2001; Scher, Zuckerman, & Epstein, 2005), although the degree that this applies to the population of preschool-aged children (vs. infants) is unclear. The reliability of the subscales related to limit-setting and active comforting was generally lowest; the extent this represents measurement error or reflects parents' struggles with these strategies is also unknown.

Future investigations would benefit greatly from multi-rater, multi-method assessment, including the use of actigraphy, video-observation, and qualitative methods. In the present study all variables were gathered from mothers' questionnaire report and several of the key variables were measured using instruments developed and validated with this sample. This could lead to spurious findings associated with shared-method and shared-rater variance. In general, parents are considered to reliable reporters of sleep behaviours with which they are directly involved (Sadeh, 2008). Parents are also the most appropriate reporters of their internal states. Thus, it can be assumed that parents are likely more accurate reporters on the NSS, NVS, and PNTQ, than on some of the questions about night-waking, such as how often their children settle back to sleep independently (on the CNBS) and how frequently their children wake per week (on the modified Infant Sleep Questionnaire; DiLeo, Lewis, & Taliaferro, 2005; Morrell, 1999b). Actigraphy and video-observation of children's sleep and night-waking would provide

objective measures of these variables. Video-observation would also allow for independent ratings of children's night-waking behaviours and the quality of parents' night-waking strategies. Further, video-observation would permit analysis of the interactions between parents and children during night-waking episodes. These data would not be available through other methods.

Qualitative methods would allow further exploration of the development of parents' night-waking beliefs, the influence of their thoughts and affect during night-waking episodes and changes in parents' experiences of night-waking over time. As part of the broader Parenting at Midnight research program¹⁰, I have developed a piloted a video-observation/ video-recall procedure in which parents watch videos of their children's night-waking (taken the night before) and discuss their thoughts, feelings, and night-waking strategy use. This appears to be a promising research technique with which to gain an approximate understanding on parents' experiences of night-waking, both through direct observation and parents' simultaneous narration.

Correlational, Cross-sectional Study Design

¹⁰ This research is not part of my dissertation, but is related to the central questions that my dissertation poses. Studies included in this program of research include six- and twelve-month follow-up with parents involved in the present study and the development and piloting of a video-observation/ video-recall interview procedure. Separate research grants were obtained from the University of Western Ontario Department of Family Medicine and Lawson Health Research Institute to conduct these studies.

Given the cross-sectional and correlational nature of the present research project, causation cannot be assessed. Longitudinal studies and studies explicitly examining reciprocal patterns of parent-child interactions during night-wakings are needed.

Relevance

Sleep is increasingly recognized as a pillar of health. The effects of inadequate sleep have been documented at the individual, family, and societal level. Children and parents who do not obtain sufficient sleep may experience emotional, behavioural, and cognitive dysregulation (e.g., Bates et al., 2002; Stepanski, 2002), relational difficulties (Gellman & King, 2001; Morrell, 1999a; Sadeh & Anders, 1993), and poorer health related quality of life (e.g., Hiscock, Canterford, & Ukoumunne, 2007; Mindell et al., 2006). In comparison to what is known about infant sleep, little is known about the sleep of preschool-aged children. A lack of published literature exists about how parents respond to night-waking during night-time interactions with their preschool-aged children (night-waking strategy use), the association of parents' night-waking strategies to children's night-waking, and potential influences on night-waking strategy use. Exploring factors that make parents more vulnerable to the selection of maladaptive night-waking strategies can lead to improved sleep interventions. This can significantly impact the health and well-being of parents and children who experience night-waking. Exploring factors that may make parents more likely to select effective strategies, such as limit-setting and routines, may also be a means to achieving this end.

This dissertation made the following unique contributions to the pediatric sleep literature: a) it presented the development and preliminary validation of four new measures of parenting and night-waking, and b) it identified potential influences of

parents' night-waking strategy use, laying the foundation for future model building and exploration. The present research highlights the importance of exploring parents' pre-existing beliefs about night-waking strategies, as well as their "in the moment" thoughts and affect related to night-waking, prior to intervention. For example, achieving parents' general agreement with limit-setting may not be sufficient to achieve their adherence and fidelity with limit-setting strategies. For some parents, more directed coaching to build positive thoughts about limit-setting during actual night-waking episodes may be necessary. Further research is required to examine the associations among parents' beliefs, thoughts, and behaviour over time. A developmental approach to research about parenting in relation to night-waking should be considered. Long-term outcomes of parents' night-waking strategies, both in relation to sleep and in relation to child- and parent-functioning overall, are required (Crnec et al., 2010).

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Appendix A

Night-waking Vignettes Scale (NVS)

Your advice when children wake at night

On the following pages are several descriptions of children of who have woken up at night. Each description states that the child is a “healthy 2-year-old girl”. This is to let you know that the child in each description:

- is the same age and gender as your child
- and that there is nothing unusual (like being sick) that needs to be considered in your response

Please note:

- All of the children have already made the shift from a crib to a toddler or “big girl” bed.
- Each description is about a behaviour that is common for that child. In each case, the behaviour has been happening for at least a month.
- Each description takes place in the middle of the night. Everyone in the family has gone to bed and has been asleep for a period of time. When the child wakes up, the father also wakes up and becomes aware of what his child is doing.

After each description there are some statements about different ways a parent could handle the situation. Please indicate how much you agree with each statement. There are no right or wrong answers.

Answer according to your own beliefs about what you think each child’s mother should do.

1. Mackenzie is a healthy 2-year-old girl. When she wakes up at night, she always calls out for her mother to bring her a drink. Her mother doubts that she is thirsty. Mackenzie always gets a drink right before bed.

I think that Mackenzie's mother should...	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Bring her a drink	[]	[]	[]	[]	[]	[]
Not bring her a drink	[]	[]	[]	[]	[]	[]
Let her know that if she doesn't call out for a drink during the night, the "sticker fairy" will leave a surprise under her pillow in the morning	[]	[]	[]	[]	[]	[]
Discipline her for continuing to call out for a drink	[]	[]	[]	[]	[]	[]

2. Molly is a healthy 2-year-old girl. Molly always gets a drink right before bed. When she wakes up at night, Molly calls out to her mother for something to drink. When her mother tells her not to ask for any more drinks at night, Molly becomes very upset. Every few minutes, Molly gets out of her bed, stands in her doorway, and yells: "I'm so thirsty! Mommy I need a drink! I need a drink now!"

I think that Molly's mother should...	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Scold her for her bad behaviour	[]	[]	[]	[]	[]	[]
Resist her request and ignore her behaviour	[]	[]	[]	[]	[]	[]
Come up with a system to reward Molly for better behaviour at night (e.g., staying in her bed, not yelling)	[]	[]	[]	[]	[]	[]
Give her a drink and help Molly to calm down	[]	[]	[]	[]	[]	[]

3. Hannah is a healthy 2-year-old girl. When she wakes up during the night, Hannah leaves her room to visit with Felix, the family cat. When her mother tells her to return to her room, Hannah becomes very emotional and refuses to move. She cries: "Please Mommy, no. Felix is lonely."

I think that Hannah's mother should...	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Offer to lie down with her if she'll return to her room	[]	[]	[]	[]	[]	[]
Discipline her for refusing to return to her room (e.g., take away a toy or privilege, scold her)	[]	[]	[]	[]	[]	[]
Walk her back to her room and ignore the rest of her behaviour	[]	[]	[]	[]	[]	[]
Tell her that if she stays in her room for the rest of the night, she and Felix can both have a special breakfast in the morning	[]	[]	[]	[]	[]	[]

4. Lauren is a healthy 2-year-old girl. When she wakes during the night, Lauren likes to tell stories to her teddy bears. The stories are usually quiet, but are sometimes loud enough that Lauren's mother can hear them if she is walking by Lauren's room. When her mother tells her to go back to sleep, Lauren gets very upset and pretends not to hear. Lauren then says to her teddy bear, "Mommy is mean. You want me to play".

I think that Lauren's mother should...	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Tell Lauren that if she doesn't play with her teddy bears at night, she will get a treat in the morning	[]	[]	[]	[]	[]	[]

6. Emma is a healthy 2-year-old girl. When she wakes up at night, she calls out for her mother to cuddle with her. When Emma's mother does not respond within a few minutes, Emma continues to call out for cuddles.

I think that Emma's mother should...	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Start giving Emma rewards in the morning for being quiet at night	[]	[]	[]	[]	[]	[]
Not go to her	[]	[]	[]	[]	[]	[]
Come up with a system where Emma loses a point every time she calls out; if she loses too many points then she'll lose a privilege	[]	[]	[]	[]	[]	[]
Go to her if she seems to be getting upset	[]	[]	[]	[]	[]	[]

7. Maya is a healthy 2-year-old girl. When she wakes up at night, Maya leaves her room and crawls into her parent's bed. When her mother tells her that she cannot stay, Maya begs to stay, becomes very upset, and cries: "Please Mommy!" She holds onto to her mother tightly and refuses to go back to her room.

I think that Maya's mother should...	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Scold Maya for refusing to sleep on her own	[]	[]	[]	[]	[]	[]
Come up with a reward that will encourage Maya to stay in her room (e.g., if Maya stays in her room all night, she can have an extra cuddle in the morning)	[]	[]	[]	[]	[]	[]

Appendix A

Night-waking Strategies Scale

What you do when your child wakes at night

The next questionnaire is about what parents do when their child wakes at night and “makes a request”. “Making a request” means things like: calling out, asking for something like a drink or a cuddle, or when a child leaves her room or sleeping area. All of the things that were listed on the questionnaire called “What your child does when she wakes at night” count as “making a request”.

On the next page you will find a list of things that parents may do when their child wakes at night and “makes a request”. We are interested in what you do when your child wakes at night and makes a request. If you are part of a two-parent family, this may or may not be different from what your spouse or partner does.

Please note:

- We are only asking about what you do during the night, when your child wakes up after having already been asleep for at least 10 minutes. We are not asking about what you do at the beginning of the night as part of a bedtime routine. If you do some of the things that are listed as part of your child’s bedtime routine, but never do them when your child wakes up during the night, please answer “never” for those questions.
- When children are sick, parents respond differently to their requests at nights. Please tell us what you do only when your child is healthy.

Appendix B

The University of Western Ontario Psychology Research Ethics Board Approval



Department of Psychology The University of Western Ontario
 Room 7419 Social Sciences Centre,
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Use of Human Subjects - Ethics Approval Notice

Review Number	06 07 03	Approval Date	06 07 18
Principal Investigator	Graham Reid/Amee Coulombe	End Date	06 08 31
Protocol Title	Parenting at Midnight: Study 1		
Sponsor	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval in the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario's Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: <http://www.uwo.ca/research/ethics/>)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:

- changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- all adverse and unexpected experiences or events that are both serious and unexpected;
- new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.

Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2006-2007 PREB are: Berran Gawronski, Rick Griffin, Marc Juska, and Jim Olson

CC: UWO Office of Research Ethics

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Use of Human Subjects - Ethics Approval Notice

Review Number	06 07 04	Approval Date	06 07 18
Principal Investigator	Graham Reid/Almeo Coulombe	End Date	07 03 31
Protocol Title	Parenting at Midnight: Study 2	* note: subjects did consent to sleep at 2:00 on Dec 10/05	
Sponsor	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario's Research Ethics Board for Non-Medical Research Involving Human Subjects (NMRHS) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: <http://www.uwo.ca/research/ethics/>)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

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- adverse and unexpected experiences or events that are both serious and unexpected;
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Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2006-2007 PREB are: Bertram Gawronski, Rick Goffin, Marc Jourdain, and Jim Olson

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Appendix C

CNBS, NVS, PNTQ, and NSS Administered to Validation Sample of Mothers

Note: The CNBS is titled “What your child does when she wakes up at night”. The NSS is titled “What you do when your child wakes at night”. The NVS is titled “Your advice when children wake at night”. The PNTQ is titled “Your thoughts and feelings when your child wakes at night”. The presented questionnaires are customized for mothers of 4-year-old girls.

What your child does when she wakes up at night

The following statements are things that children do when they wake up at night. How often does your child do the following things when she wakes at night: "never", "a little (1/4) of the time", "1/2 the time", "most (3/4) of the time", "all the time", or something in between? Please answer based on the **"past MONTH"**.

When my child wakes during the night, she.....		Never	1/4 of the time	1/2 of the time	3/4 of the time	All the time
1.	Settles back to sleep without any assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Calls out to parents from bed or crib	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Leaves bed or crib	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Leaves the room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Asks for a drink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Asks for food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Asks for a cuddle, back rub, touch, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Asks for a story or song	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Asks for the television to be on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Asks for the radio or music	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Asks for a favourite toy or stuffed animal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Asks to be tucked in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Asks for other parent/family member	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Wants to visit or talk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Wants to play	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Wants to know what parent is doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Asks parent to stay with her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Asks to stay in parent's bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Says she has had a nightmare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Says she is scared (other than from a nightmare, e.g., dark, something in closet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What you do when your child wakes at night

The next questionnaire is about what parents do when their child wakes at night and "makes a request". "Making a request" means things like: calling out, asking for something like a drink or a cuddle, or when a child leaves her room or sleeping area. All of the things that were listed on the questionnaire called "What your child does when she wakes at night" count as "making a request".

On the next page you will find a list of things that parents may do when their child wakes at night and "makes a request". We are interested in what you do when your child wakes at night and makes a request. If you are part of a two-parent family, this may or may not be different from what your spouse or partner does.

Please note:

• We are only asking about what you do during the night, when your child wakes up after having already been asleep for at least 10 minutes. We are not asking about what you do at the beginning of the night as part of a bedtime routine. If you do some of the things that are listed as part of your child's bedtime routine, but never do them when your child wakes up during the night, please answer "never" for those questions.

• When children are sick, parents respond differently to their requests at nights. Please tell us what you do only when your child is healthy.

Rate how often you do each of the following things when your child wakes at night and makes a request-"A little (1/4) of the time", "1/2 of the time", "Most (3/4) of the time", "All the time", or something in between.

Please answer based on the **"past MONTH"**.

When my child wakes at night and makes one or more requests, I...		Never	1/4 of the time	1/2 of the time	3/4 of the time	All the time
1.	Do not respond	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Take away a toy (e.g., stuffed animal) or privilege (e.g., something she enjoys doing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Wait and see if she will go back to sleep on her own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Lie with her in her bed or bedroom until she falls asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Scold her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Sit with her or stand in her room until she falls asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Tell her that if she doesn't go back to sleep, then she will be punished (e.g., not get something she wants to the next day, lose a toy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Keep my interactions with her to a minimum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Spank her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Let her sleep in my bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Do a quick check but leave her to fall back to sleep without me in the room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Use a neutral tone of voice to remind her that it is time to go to sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Shout or yell at her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Give her what she wants so that she does not become upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Threaten to punish her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Tell her that if she goes back to sleep without any more requests, she'll get a special reward in the morning (e.g., sticker, treat or activity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Sing her a song, lullaby or tell a story	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Respond quickly to her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Gradually increase the amount of time I wait before responding to her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	Use an angry tone of voice to tell her it is time to go to sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	Ignore her request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	Check to see what she wants and then decide what to do next	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following are things that parents do when their child wakes at night and leaves the room. Rate how often you do each of the following.

When my child wakes at night and leaves her room, I.....

		She does not leave her room								
		Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
23.	Yell at her to go back to bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	Walk her back to her room without much talking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.	Use a punishment system to encourage her to stay in her room (e.g., losing toys, or privileges)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26.	Let her stay in my room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.	Tell her to go back to bed in a neutral voice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.	Punish her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.	Use a reward system to encourage her to stay in her room (e.g., stickers, stars, treats)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.	Tell her that her door will stay closed unless she stays in bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31.	Let her sleep on the floor next to my bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following are things that parents may do during the day to help their child sleep through the night. Rate how often you do each of the following.

When my child has had a ****better**** night than usual (e.g., made fewer requests, was awake for less time), the next day I.....

		Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
32.	Give her lots of praise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33.	Give her a special treat or reward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34.	Don't make a big fuss about it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35.	Let her know how proud I am of her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When my child has had a ****worse**** night than usual (e.g., made more requests, was awake longer), the next day I.....

		Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
36.	Tell her that I am disappointed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37.	Provide a punishment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38.	Don't make a big fuss about it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39.	Put her to bed later	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40.	Put her to bed earlier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41.	Use a reward system to encourage her to sleep through the night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When my child has had a "worse" night than usual (e.g., made more requests, was awake longer), the next day I.....

	Does not nap	Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
42. Move her nap time earlier in the day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Take away her nap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Give her an extra nap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In order to help my child sleep at night, I.....

	Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
45. Have her go to bed at the same time every night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Have her wake up at the same time every morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Have a bedtime routine (do the same things in the same order each night)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Have her spend time in relaxing or quiet activities before bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Avoid giving her caffeine during the day (e.g., in cola, chocolate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Avoid exciting activities before bed (e.g., "rough-housing", active play)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. Let her quiet down by watching a video or television before bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52. Give her lots of opportunities to be active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53. Make sure we spend special "one-on-one" time together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54. Let her decide when she goes to bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. Let her decide when she wakes up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Your advice when children wake at night

On the following pages are several descriptions of children of who have woken up at night.

Each description states that the child is a "healthy 4-year-old girl". This is to let you know that the child in each description:

- is the same age and gender as your child
- and that there is nothing unusual (like being sick) that needs to be considered in your response

Please note:

- All of the children have already made the shift from a crib to a toddler or "big girl" bed.
- Each description is about a behaviour that is common for that child. In each case, the behaviour has been happening for at least a month.
- Each description takes place in the middle of the night. Everyone in the family has gone to bed and has been asleep for a period of time. When the child wakes up, the father also wakes up and becomes aware of what his child is doing.

After each description there are some statements about different ways a parent could handle the situation. Please indicate how much you agree with each statement. There are no right or wrong answers. Answer according to your own beliefs about what you think each child's mother should do.

1. Emily is a healthy 4-year-old girl who has been toilet trained. Each night before bed, Emily's mother makes sure to take her to the bathroom. When Emily wakes up at night, she calls to her mother. Emily says that she needs to go to the bathroom.

I think that Emily's mother should.....

	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Not take her to the washroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Punish her for calling out at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell Emily that if she doesn't call out at night, she get a treat in the morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Take her to the bathroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Samantha is a healthy 4-year-old girl. When Samantha wakes up at night, she sings loudly and talks to her pet hamster. This sometimes lasts for a few minutes, but has gone on for up to an hour. Eventually, Samantha falls back to sleep on her own. Samantha has been told that she is not to sing or play with her hamster during the night. Samantha doesn't leave her bed and doesn't call out to her parents.

I think that Samantha's mother should...

	<i>No, definitely disagree</i>	<i>No, mostly disagree</i>	<i>No, somewhat disagree</i>	<i>Yes, somewhat agree</i>	<i>Yes, mostly agree</i>	<i>Yes, definitely agree</i>
Ignore her behaviour during the night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stay with Samantha until she falls asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discipline Samantha by taking away her hamster until she learns to sleep through the night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let Samantha know that if she doesn't sing and talk to her hamster any more, she will get a special surprise in the morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Olivia is a healthy 4-year-old girl. When she wakes up at night, Olivia turns on her lamp. She does not leave her room or call out to her mother. Olivia's lamp is fairly bright. Olivia's mother has tried nightlights and leaving the hall light on; Olivia still turns her lamp on. Whenever Olivia's mother sees the lamp is on, she goes into Olivia's room and turns the lamp off. Within a few minutes, Olivia turns the lamp back on. Sometimes Olivia's mother hears Olivia giggling as she turns the lamp back on.

I think that Olivia's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Ignore her behaviour during the night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell Olivia that she will lose a toy of privilege if she turns her lamp back on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell Olivia that she will get a reward if she leaves her lamp off for the rest of the night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allow Olivia to sleep with her lamp on	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Hannah is a healthy 4-year-old girl. When she wakes up during the night, Hannah leaves her room to visit with Felix, the family cat. When her mother tells her to return to her room, Hannah becomes very emotional and refuses to move. She cries: "Please Mommy, no. Felix is lonely."

I think that Hannah's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Offer to lie down with her if she'll return to her room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discipline her for refusing to return to her room (e.g., take away a toy or privilege, scold her)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walk her back to her room and ignore the rest of her behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell her that if she stays in her room for the rest of the night, she and Felix can both have a special breakfast in the morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Emma is a healthy 4-year-old girl. When she wakes up at night, she calls out for her mother to cuddle with her. When Emma's mother does not respond within a few minutes, Emma continues to call out for cuddles.

I think that Emma's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Start giving Emma rewards in the morning for being quiet at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not go to her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Come up with a system where Emma loses a point every time she calls out; if she loses too many points then she'll lose a privilege	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Go to her if she seems to be getting upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Mackenzie is a healthy 4-year-old girl. When she wakes up at night, she always calls out for her mother to bring her a drink. Her mother doubts that she is thirsty. Mackenzie always gets a drink right before bed.

I think that Mackenzie's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Bring her a drink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not bring her a drink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let her know that if she doesn't call out for a drink during the night, the "sticker fairy" will leave a surprise under her pillow in the morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discipline her for continuing to call out for a drink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Maya is a healthy 4-year-old girl. When she wakes up at night, Maya leaves her room and crawls into her parents bed. When her mother tells her that she cannot stay, Maya begs to stay, becomes very upset, and cries: "Please Mommy!" She holds onto to her mother tightly and refuses to go back to her room.

I think that Maya's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Scold Maya for refusing to sleep on her own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Come up with a reward that will encourage Maya to stay in her room (e.g., if Maya stays in her room all night, she can have an extra cuddle in the morning)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allow Maya to stay or offer to stay with Maya in her room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walk her back to her room and leave before Maya falls asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Morgan is a healthy 4-year-old girl. When Morgan wakes up at night, she leaves her room and crawls into bed with her parents. Sometimes Morgan is so quiet that her mother doesn't notice for several hours.

I think that Morgan's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Walk Morgan back to her room AND provide a reward for staying there (e.g., a special treat the next day)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allow Morgan to stay in bed with her parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discipline Morgan the next morning for leaving her room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walk Morgan back to her room WITHOUT providing a reward for staying there	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Lauren is a healthy 4-year-old girl. When she wakes during the night, Lauren likes to tell stories to her teddy bears. The stories are usually quiet, but are sometimes loud enough that Lauren's mother can hear them if she is walking by Lauren's room. When her mother tells her to go back to sleep, Lauren gets very upset and pretends not to hear. Lauren then says to her teddy bear, "Mommy is mean. You want me to play".

I think that Lauren's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Tell Lauren that if she doesn't play with her teddy bears at night, she will get a treat in the morning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warn her that she will lose her teddy bears for the night if she continues telling stories to them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Punish her for being defiant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ignore her outburst and remind her that it is time to sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stay with her until she falls asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Zoe is a healthy 4-year-old girl. When Zoe wakes up at night, she always calls for a story. Zoe always gets a story before bed. Her mother does not want to tell another story when Zoe wakes up at night.

I think that Zoe's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Provide a reward when Zoe does not call out for a story (e.g., something special the next morning)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ignore her request for a story	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell her a quick story that is not very interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell Zoe that if she continues to call for a story during the night, she won't get a bedtime story the next night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. Molly is a healthy 4-year-old girl. Molly always gets a drink right before bed. When she wakes up at night, Molly calls out to her mother for something to drink. When her mother tells her not to ask for any more drinks at night, Molly becomes very upset. Every few minutes, Molly gets out of her bed, stands in her doorway, and yells: "I'm so thirsty! Mommy I need a drink! I need a drink now!"

I think that Molly's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Scold her for her bad behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resist her request and ignore her behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Come up with a system to reward Molly for better behaviour at night (e.g., staying in her bed, not yelling)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Give her a drink and help Molly to calm down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Megan is a healthy 4-year-old girl. When Megan wakes up at night, she calls out for her mother to cuddle with her. When her mother does not come to her, Megan gets very emotional and yells: "Mommy, you're so mean!"

I think that Megan's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Resist her request for a cuddle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comfort her before she gets too upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discipline her for yelling at her mother	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Make sure that she praises Megan the next morning whenever Megan makes it through the night without calling for another cuddle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Sarah is a healthy 4-year-old girl. Sarah's mother has been working on helping Sarah sleep through the night. Sarah wakes up, comes into her mother's room, and looks scared and tearful. When her mother asks what is wrong, Sarah says that she has had a bad dream.

I think that Sarah's mother should...

	No, definitely disagree	No, mostly disagree	No, somewhat disagree	Yes, somewhat agree	Yes, mostly agree	Yes, definitely agree
Comfort her until she is calm enough to go back to sleep on her own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discipline Sarah for leaving her room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walk Sarah back to her room and ignore her behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allow Sarah to stay with her or offer to sleep with Sarah in her room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Your sleep quality

The following questions relate to your usual sleep habits during the **"past MONTH"**. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all the questions.

- During the past month, when have you usually gone to bed at night?
Usual bed time:
- During the past month, how long has it usually taken you to fall asleep each night?
Number of minutes:
- During the past month, when have you usually gotten up in the morning?
Usual getting up time:
- During the past month, how many hours of *actual* sleep did you get at night? (This may be different than the number of hours you spend in bed.)
Hours of sleep per night:

Your thoughts and feelings when your child wakes at night

Below you will find a variety of thoughts and feelings that parents can have when their child wakes at night and makes one or more requests. "Making a request" means things like: calling out for you, asking for something like a drink or a cuddle, or leaving her room. All of the things that were listed on the questionnaire called "What your child does when she wakes at night" count as "making a request".

Read each thought or feeling and indicate how typically it occurs to you-"Never", "A little (1/4) of the time", "1/2 of the time", "Most (3/4) of the time", "All the time", or something in between.

Please base your answers on the "past MONTH".

When my child wakes at night and makes one or more requests, I find myself thinking that...		Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
1.	It is more important for us to get back to sleep quickly than for me to try to refuse her request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	I should respond to her immediately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	It's okay if I don't give her what she wants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	If I ignore her requests now, she'll learn to sleep independently in the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	If I don't respond to her, she'll wake other members of my family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	I'll be sad when she's too old to seek my comfort at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	If I don't respond to her at all, it may cause her lasting emotional harm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	She will feel abandoned if I don't respond to her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	It's okay to ignore her request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	I may never get a good night's sleep again	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	She needs me and I am glad that I can provide her comfort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	If I refuse her request, it will only make her upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	When I respond to her at night, I am teaching her to trust that I will always be there for her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	She is out of control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	There's no point in trying to ignore her request; I know I'll eventually give in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	If I don't get her to settle quickly, I will be too tired to function the next day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	She needs me to teach her how to sleep without me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Ignoring her request would be as bad as neglecting her during the day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	I need to resist her request so that she will learn to sleep on her own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	The time we spend together during the night is important to us	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	If I resist her request, it may cause her lasting emotional harm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	She is trying to keep me up on purpose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	If I don't respond to her, she'll eventually go back to sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	Giving her what she wants is the only way for my family to get any rest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When my child wakes at night and makes one or more requests, I find myself thinking that...

	Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	Always
25. Responding to her at night makes me feel like a good parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Refusing her request is not worth the distress it might cause her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. She is very frustrating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. If I ignore her, it will only make her upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. There's no point in trying to refuse her request; I know I'll eventually give in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Refusing her request is not worth the distress it might cause me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. She needs me and I am glad that I can satisfy her needs at night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. There could be something wrong and it is safer to check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I must not have given her enough attention during the day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I'm glad she needs me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When my child wakes at night and makes one or more requests, I find myself.....

	Never	---	1/4 of the time	---	1/2 of the time	---	3/4 of the time	---	All the time
35. Doubting that I am doing the right things as a parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Worrying that if I don't respond to her she'll wake the neighbours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Feeling confident that I am able to resist her request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Wishing she wasn't so demanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Losing my temper with her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. Feeling like her waking is all my fault	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Feeling helpless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Resenting being a parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Resenting her demands on me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Having trouble deciding if I should respond	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. Feeling angry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Feeling conflicted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Feeling confused about the right way to respond to her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Enjoying the opportunity to spend extra time with her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D

Pilot Versions of the NVS, PNTQ, and NSS Administered to Student Clarity and Content Validity Raters, Expert Reviewers and Parent Reviewers

Note: PNTQ was formerly titled PCNQ. Due to similarities between pilot versions of each measure (i.e., clarity, content, and expert and parent review versions) and in consideration of space, only clarity questionnaires are presented in this appendix.

Phase1Clarity_A_ID:

NVS-PROTOTYPE

In the following questionnaire, you will find several descriptions of children of who have woken up at night. We begin each description by saying that the child is a "healthy 2-year-old girl". This is to let you know that the child in each description:

- is the same age as your child
- is the same gender as your child
- and that there is nothing unusual (like being sick) that needs to be considered in your response

After each description several statements will appear. These statements ask about what you think should be done when children wake up at night.

Please indicate your degree of agreement with each statement according to the scale provided. There are no right or wrong answers- answer according to your own beliefs about what each child's mother *should* do.

Sue is a healthy 2-year-old girl. Each night before bed, Sue's mother makes sure to take her to the bathroom. When Sue wakes up at night, she calls to her mother. Sue says that she needs to go to the bathroom. Sue's mother should.....

	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Resist her request	[]	[]	[]	[]	[]	[]
Punish her for calling out at night	[]	[]	[]	[]	[]	[]
Tell Sue that if she doesn't call out at night, she will get a treat in the morning	[]	[]	[]	[]	[]	[]
Take her to the bathroom	[]	[]	[]	[]	[]	[]

Is there anything else you think Sue's mother should do?

Write it here:

Phase1Clarity_A_ID:

Sammy is a healthy 2-year-old girl. When Sammy wakes up at night, she sings and talks to her pet hamster. This usually lasts for a few minutes, but sometimes lasts longer. Sammy has been told that she is not to play with her hamster at night. Sammy doesn't leave her bed and doesn't call out to her parents. Sammy's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Ignore her behaviour during the night	[]	[]	[]	[]	[]	[]
Stay with Sammy until she falls asleep	[]	[]	[]	[]	[]	[]
Discipline Sammy by taking away her hamster until she learns to sleep through the night	[]	[]	[]	[]	[]	[]
Let Sammy know that if she doesn't play with her hamster during the night, she will get a special surprise in the morning	[]	[]	[]	[]	[]	[]
Is there anything else you think Sammy's mother should do? Write it here:						

Leslie is a healthy 2-year-old girl. When she wakes up at night, Leslie turns on her lamp and looks at her books. When her mother sees this, she turns the lamp off and tells Leslie to go to bed. Within a few minutes, Leslie turns the lamp back on and starts looking at books again. Leslie's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Ignore her behaviour during the night	[]	[]	[]	[]	[]	[]
Tell Leslie that she will lose a privilege if she doesn't turn off her light for the rest of the night	[]	[]	[]	[]	[]	[]
Tell Leslie that she will get a reward for turning off her light for the rest of the night	[]	[]	[]	[]	[]	[]
Stay and read to her until she falls asleep	[]	[]	[]	[]	[]	[]
Is there anything else you think Leslie's mother should do? Write it here:						

Phase1Clarity_A_ID:

Ryan is a healthy 2-year-old girl. When she wakes up during the night, Ryan leaves her room to visit with Felix, the family cat. When her mother tells her to return to her room, Ryan becomes very emotional and refuses to move. She cries: "Please Mommy, no. Felix is lonely. He wants me to stay." Ryan's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Offer to lay down with her until she falls asleep	[]	[]	[]	[]	[]	[]
Discipline her for refusing to return to her room (e.g., take away a toy or privilege, scold her)	[]	[]	[]	[]	[]	[]
Walk her back to her room and ignore the rest of her behaviour	[]	[]	[]	[]	[]	[]
Tell her that if she stays in her room for the rest of the night, she and Felix can both have a special breakfast in the morning	[]	[]	[]	[]	[]	[]
Is there anything else you think Ryan's mother should do? Write it here:						

Georgia is a healthy 2-year-old girl. When she wakes up at night, she calls out for her mother to cuddle with her. Georgia's mother has decided not to do this. She has told Georgia to stop calling out. Georgia continues to call out for cuddles when she wakes during the night. Georgia's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Resist going to her AND reward her on nights she does not call out	[]	[]	[]	[]	[]	[]
Resist going to her at all	[]	[]	[]	[]	[]	[]
Come up with a system where Georgia loses a point every time she calls out; if she loses too many points then she'll lose a privilege	[]	[]	[]	[]	[]	[]
Go to her if she seems to be getting upset	[]	[]	[]	[]	[]	[]
Gradually increase the amount of time, she waits before going to her	[]	[]	[]	[]	[]	[]
Is there anything else you think Georgia's mother should do? Write it here:						

Phase1Clarity_A_ID:

Mackenzie is a healthy 2-year-old girl. When she wakes up at night, she always calls out for her mother to bring her a drink. Her mother doubts that she is thirsty. Mackenzie always gets a drink right before bed. Mackenzie's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Bring her a drink	[]	[]	[]	[]	[]	[]
Resist her request	[]	[]	[]	[]	[]	[]
Let her know that if she doesn't call out for a drink during the night, the "sticker fairy" will leave a surprise under her pillow in the morning	[]	[]	[]	[]	[]	[]
Discipline her for continuing to call out for a drink	[]	[]	[]	[]	[]	[]
Is there anything else you think Mackenzie's mother should do? Write it here:						

Mal is a healthy 2-year-old girl. When she wakes up at night, Mal sneaks into her parents' room and crawls into bed. When her mother tells her that she cannot stay, Mal begs to stay, becomes very upset, and cries: "Please Mommy! I need you!" She holds onto to her mother tightly and refuses to go back to her room. Mal's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Scold Mal for refusing to sleep on her own	[]	[]	[]	[]	[]	[]
Come up with a reward that will encourage Mal to stay in her room (e.g., if Mal stays in her room all night, she can have an extra cuddle in the morning)	[]	[]	[]	[]	[]	[]
Stay with her until she falls asleep	[]	[]	[]	[]	[]	[]
Walk Mal back to her room and hold the door closed so that she cannot leave	[]	[]	[]	[]	[]	[]
Walk her back to her room and leave before Mal falls asleep	[]	[]	[]	[]	[]	[]
Is there anything else you think Mal's mother should do? Write it here:						

Phase1Clarity_A_ID:

Terry is a healthy 2-year-old girl. When Terry wakes up at night, she leaves her room and crawls into bed with her parents. Sometimes Terry is so quiet that her mother doesn't notice for several hours. Terry's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Walk Terry back to her room and provide a reward for staying there (e.g., a special treat the next day)	[]	[]	[]	[]	[]	[]
Allow Terry to stay in bed with her parents	[]	[]	[]	[]	[]	[]
Discipline Terry the next morning for leaving her room	[]	[]	[]	[]	[]	[]
Walk Terry back to her room without providing a reward for staying there	[]	[]	[]	[]	[]	[]
Put a bell or noise-maker on Terry's door, so that she won't be able to sneak out of her room	[]	[]	[]	[]	[]	[]
Is there anything else you think Terry's mother should do? Write it here:						

Harriett is a healthy 2-year-old girl. When she wakes during the night, Harriett likes to tell stories to her teddy bears. When her mother tells her to go back to sleep, Harriett gets very upset and pretends not to hear. Harriett then says to her teddy bear, "Mommy is so mean. You want me to play with you don't you". Harriett's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Discipline her for being defiant	[]	[]	[]	[]	[]	[]
Warn her that she will lose her teddy bear for the night if she continues telling stories to them	[]	[]	[]	[]	[]	[]
Punish her for being defiant	[]	[]	[]	[]	[]	[]
Remind her again that it is time to sleep and ignore her outburst	[]	[]	[]	[]	[]	[]
Stay with her until she falls asleep	[]	[]	[]	[]	[]	[]
Is there anything else you think Harriett's mother should do? Write it here:						

Phase1Clarity_A_ID:

Nat is a healthy 2-year-old girl. When Nat wakes up at night, she always calls for her mother to tell her a story. Nat always gets a story before bed. Her mother does not want to read one during the night also. Nat's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Ignore her request AND provide a reward when Nat does not call out for a story (e.g., something special the next morning)	[]	[]	[]	[]	[]	[]
Ignore her request	[]	[]	[]	[]	[]	[]
Read her a quick story that is not very interesting	[]	[]	[]	[]	[]	[]
Tell Nat that if she continues to call for a story during the night, she won't get a bedtime story the next night.	[]	[]	[]	[]	[]	[]
Is there anything else you think Nat's mother should do? Write it here:						

Lee is a healthy 2-year-old girl. Lee always gets a drink right before bed. When she wakes up at night, Lee calls out to her mother for something to drink. When her mother tells her not to ask for any more drinks at night, Lee becomes very upset. Every few minutes, Lee gets out of her bed, stands in her doorway, and yells: "I'm so thirsty! Mommy I need a drink! I need a drink now!" Lee's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Scold her for her bad behaviour	[]	[]	[]	[]	[]	[]
Resist her request and ignore her behaviour	[]	[]	[]	[]	[]	[]
Come up with a system to reward Lee for better behaviour at night (e.g., staying in her bed, not yelling)	[]	[]	[]	[]	[]	[]
Give her a drink and help Lee to calm down	[]	[]	[]	[]	[]	[]
Is there anything else you think Lee's mother should do? Write it here:						

Phase1Clarity_A_ID:

Parker is a healthy 2-year-old girl. When Parker wakes up at night, she calls out for her mother to cuddle with her. When her mother does not come to her, Parker gets very emotional and yells: "Mommy, you're so mean!" Parker's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Ignore her calling out	[]	[]	[]	[]	[]	[]
Resist her request for a cuddle	[]	[]	[]	[]	[]	[]
Comfort her before she gets too upset	[]	[]	[]	[]	[]	[]
Scold her for yelling at her mother	[]	[]	[]	[]	[]	[]
Make sure that she praises Parker the next morning whenever Parker makes it through the night without calling for another cuddle	[]	[]	[]	[]	[]	[]
Is there anything else you think Parker's mother should do? Write it here:						

Shannon is a healthy 2-year-old girl. Shannon's mother has been working on helping Shannon sleep through the night. Shannon wakes up, comes into her mother's room, and looks scared and tearful. When her mother asks what is wrong, Shannon says that she has had a bad dream. Shannon's mother should.....						
	Yes, definitely agree	Yes, mostly agree	Yes, somewhat agree	No, somewhat disagree	No, mostly disagree	No, definitely disagree
Comfort her until she is able to go back to sleep on her own	[]	[]	[]	[]	[]	[]
Scold Shannon for leaving her room	[]	[]	[]	[]	[]	[]
Walk Shannon back to her room and ignore her behaviour	[]	[]	[]	[]	[]	[]
Stay with Shannon until she falls asleep	[]	[]	[]	[]	[]	[]
Is there anything else you think Shannon's mother should do? Write it here:						

Phase I Clarity_A_ID:

PCNQ- PROTOTYPE					
Instructions to parents: Listed below are a variety of thoughts that cross parents' minds when their children wake during the night. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last month. Don't take too long thinking about your answer and don't hesitate to use the extreme responses when they're appropriate.					
<i>When my child wakes at night and makes one or more requests, I think that:</i>					
	Never	Hardly ever	Some-times	Often	Very often
I am able to resist her request	[]	[]	[]	[]	[]
it is more important for us to get back to sleep quickly than for me to try to resist her request	[]	[]	[]	[]	[]
I should respond to her immediately	[]	[]	[]	[]	[]
it is okay to ignore her request	[]	[]	[]	[]	[]
when I resist her request, I am helping her learn to sleep on her own	[]	[]	[]	[]	[]
if I say no to her, it means I'm a bad parent	[]	[]	[]	[]	[]
if I resist her request, it may cause her permanent emotional harm	[]	[]	[]	[]	[]
resisting her request is worth the effort it takes to help her learn to sleep on her own	[]	[]	[]	[]	[]
she will feel abandoned if I don't respond to her	[]	[]	[]	[]	[]
if I tried to resist her requests at night, I would eventually give in	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I think that:</i>					
	Never	Hardly ever	Some-times	Often	Very often
giving her what she wants is the only way for my family to get any rest	[]	[]	[]	[]	[]
I won't be able to resist her request without it turning into a battle	[]	[]	[]	[]	[]
I don't have enough energy to resist her request	[]	[]	[]	[]	[]
I don't have enough patience to resist her request	[]	[]	[]	[]	[]
I might never get a good night's sleep again	[]	[]	[]	[]	[]
she will eventually grow out of it	[]	[]	[]	[]	[]
if I ignore her, it will only make her upset	[]	[]	[]	[]	[]
I should resist her request so that she learns she is not in charge	[]	[]	[]	[]	[]
she is out of control	[]	[]	[]	[]	[]
ignoring her request it would make it too hard for other members of my family to sleep	[]	[]	[]	[]	[]

Phase I Clarity_A_ID:

<i>When my child wakes at night and makes one or more requests, I think that:</i>	Never	Hardly ever	Sometimes	Often	Very often
resisting her is not worth the distress it will cause me, my spouse, or my other children	[]	[]	[]	[]	[]
Resisting her is not worth the distress it will cause her	[]	[]	[]	[]	[]
I must not have given her enough attention during the day	[]	[]	[]	[]	[]
she must really need me	[]	[]	[]	[]	[]
she is too strong-willed for me to be able to resist her demands	[]	[]	[]	[]	[]
she can be very frustrating	[]	[]	[]	[]	[]
I might lose my temper	[]	[]	[]	[]	[]
ignoring her request would be as bad as neglecting her during the day	[]	[]	[]	[]	[]
I will be too tired to function the next day	[]	[]	[]	[]	[]
I will never get a night to myself	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I can find myself.....</i>	Never	Hardly ever	Sometimes	Often	Very often
Doubting that I am doing the right things as a parent	[]	[]	[]	[]	[]
Thinking that she trying to keep me up on purpose	[]	[]	[]	[]	[]
wishing she wasn't so demanding	[]	[]	[]	[]	[]
Enjoying the extra time we have together	[]	[]	[]	[]	[]
thinking it would be better if she was more like another child I know	[]	[]	[]	[]	[]
Resenting being a parent	[]	[]	[]	[]	[]
feeling like her waking is all my fault	[]	[]	[]	[]	[]
Resenting her demands on me	[]	[]	[]	[]	[]
feeling confused about the right away to respond to her	[]	[]	[]	[]	[]
losing my temper with her	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I can find myself.....</i>	Never	Hardly ever	Sometimes	Often	Very often
worrying that I won't get enough sleep to function well tomorrow	[]	[]	[]	[]	[]
thinking that if I resist her requests now, she will learn to sleep independently in the future	[]	[]	[]	[]	[]
having trouble deciding whether I should respond or not	[]	[]	[]	[]	[]

Phase1Clarity_A_ID:

<i>When my child wakes at night and makes one or more requests, I think that:</i>	Never	Hardly ever	Sometimes	Often	Very often
resisting her is not worth the distress it will cause me, my spouse, or my other children	[]	[]	[]	[]	[]
Resisting her is not worth the distress it will cause her	[]	[]	[]	[]	[]
I must not have given her enough attention during the day she must really need me	[]	[]	[]	[]	[]
she is too strong-willed for me to be able to resist her demands	[]	[]	[]	[]	[]
she can be very frustrating	[]	[]	[]	[]	[]
I might lose my temper	[]	[]	[]	[]	[]
ignoring her request would be as bad as neglecting her during the day	[]	[]	[]	[]	[]
I will be too tired to function the next day	[]	[]	[]	[]	[]
I will never get a night to myself	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I can find myself.....</i>	Never	Hardly ever	Sometimes	Often	Very often
Doubting that I am doing the right things as a parent	[]	[]	[]	[]	[]
Thinking that she trying to keep me up on purpose	[]	[]	[]	[]	[]
wishing she wasn't so demanding	[]	[]	[]	[]	[]
Enjoying the extra time we have together	[]	[]	[]	[]	[]
thinking it would be better if she was more like another child I know	[]	[]	[]	[]	[]
Resenting being a parent	[]	[]	[]	[]	[]
feeling like her waking is all my fault	[]	[]	[]	[]	[]
Resenting her demands on me	[]	[]	[]	[]	[]
feeling confused about the right away to respond to her	[]	[]	[]	[]	[]
losing my temper with her	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I can find myself.....</i>	Never	Hardly ever	Sometimes	Often	Very often
worrying that I won't get enough sleep to function well tomorrow	[]	[]	[]	[]	[]
thinking that if I resist her requests now, she will learn to sleep independently in the future	[]	[]	[]	[]	[]
having trouble deciding whether I should respond or not	[]	[]	[]	[]	[]

Phase1Clarity_A_ID:

NSS- PROTOTYPE					
<p>Instructions to parents: There are a number of different ways parents handle times when their child wakes during the night and “makes a request”. For the purpose of this questionnaire, a “request” can mean calling out for you, asking for something like a drink or a cuddle, or leaving her room. In some two-parent families, parents may have different ways of handling their child’s waking at night. We are interested in what <u>you</u> have done (rather than what you and your partner have done) over the course of the last month.</p> <ul style="list-style-type: none"> • When answering the following questions think of what you do when you know that your child is not sick (e.g., head cold, vomiting). • We are only asking about what you do during the night, after your child has already been asleep for at least ten minutes, not at the beginning of the night as part of a bedtime routine. If you do some of the things that are listed as part of your child’s bedtime routine, but never do them when your child wakes up during the night you would answer “never” for those items. <p>Don’t take too long thinking about your answers and don’t hesitate to use the extreme responses when they’re appropriate.</p>					
<i>When my child wakes at night and makes one or more requests, I:</i>	Never	Hardly ever	Some-times	Often	Very often
Cuddle, pat, or touch her until she falls asleep	[]	[]	[]	[]	[]
Do not respond	[]	[]	[]	[]	[]
Take away a toy (e.g., stuffed animal) or privilege (e.g., something she enjoys doing)	[]	[]	[]	[]	[]
Wait and see if she will go back to sleep on her own	[]	[]	[]	[]	[]
Lie with her in her bed until she falls asleep	[]	[]	[]	[]	[]
Remind her what I expect from her at night	[]	[]	[]	[]	[]
Scold her	[]	[]	[]	[]	[]
Sit with her or stand in her room until she falls asleep	[]	[]	[]	[]	[]
Tell her that if she doesn’t go back to sleep, then she will be punished (e.g., not get to do something she wants to the next day, lose a toy)	[]	[]	[]	[]	[]
Turn on the television or a video (in her room)	[]	[]	[]	[]	[]
Keep my interactions with her to a minimum	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I:</i>	Never	Hardly ever	Some-times	Often	Very often
Let her fall asleep somewhere else and carry her back to her room	[]	[]	[]	[]	[]
Do things to help myself stay calm	[]	[]	[]	[]	[]
Spank her	[]	[]	[]	[]	[]
Let her child sleep in my bed	[]	[]	[]	[]	[]
Do a quick check but leave her to fall back to sleep without me in the room	[]	[]	[]	[]	[]
Use a neutral tone of voice to remind her that it is time to go to sleep	[]	[]	[]	[]	[]

Phase1Clarity_A_ID:

<i>When my child wakes at night and makes one or more requests, I:</i>	Never	Hardly ever	Sometimes	Often	Very often
Shout or yell at her	[]	[]	[]	[]	[]
Try to make it easier to resist her request by distracting myself	[]	[]	[]	[]	[]
Give her what she wants as long as it is only a quick request (e.g., a drink, her teddybear)	[]	[]	[]	[]	[]
Give her what she wants once and then resist her next requests	[]	[]	[]	[]	[]
Give her what she wants as long as it doesn't involve cuddling or lying with her	[]	[]	[]	[]	[]
Give her anything she wants so that we can get back to sleep quickly	[]	[]	[]	[]	[]
Give her what she wants so that she does not become upset	[]	[]	[]	[]	[]
Talk with her about how important it is for her to go to sleep	[]	[]	[]	[]	[]
Threaten to punish her	[]	[]	[]	[]	[]
Tell her that if she goes back to sleep without any more requests, she'll get a special reward (e.g., sticker, favourite treat or activity) in the morning	[]	[]	[]	[]	[]
Talk with her about why she is awake	[]	[]	[]	[]	[]
Let her know that she is upsetting me	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I:</i>	Never	Hardly ever	Sometimes	Often	Very often
Sing her a song, lullaby or tell a story	[]	[]	[]	[]	[]
Turn on music or radio for her	[]	[]	[]	[]	[]
Use a soothing tone of voice to tell her child it is time to go to sleep	[]	[]	[]	[]	[]
Give her her special blanket/toy/ security object	[]	[]	[]	[]	[]
Ignore her the next morning	[]	[]	[]	[]	[]
Respond quickly to her calls and requests	[]	[]	[]	[]	[]
Give your child a drink or snack	[]	[]	[]	[]	[]
Wake her up early the next morning (or put her to bed later) so that she will be more tired at night	[]	[]	[]	[]	[]
Gradually increase the amount of time I wait before responding to her	[]	[]	[]	[]	[]
Tell her she is being bad or disobedient	[]	[]	[]	[]	[]
Ask her what she needs	[]	[]	[]	[]	[]
Use an angry tone of voice to tell her it is time to go to sleep	[]	[]	[]	[]	[]

Phase1Clarity_A_ID:

<i>When my child wakes at night and makes one or more requests, I:</i>	Never	Hardly ever	Sometimes	Often	Very often
Shout or yell at her	[]	[]	[]	[]	[]
Try to make it easier to resist her request by distracting myself	[]	[]	[]	[]	[]
Give her what she wants as long as it is only a quick request (e.g., a drink, her teddybear)	[]	[]	[]	[]	[]
Give her what she wants once and then resist her next requests	[]	[]	[]	[]	[]
Give her what she wants as long as it doesn't involve cuddling or lying with her	[]	[]	[]	[]	[]
Give her anything she wants so that we can get back to sleep quickly	[]	[]	[]	[]	[]
Give her what she wants so that she does not become upset	[]	[]	[]	[]	[]
Talk with her about how important it is for her to go to sleep	[]	[]	[]	[]	[]
Threaten to punish her	[]	[]	[]	[]	[]
Tell her that if she goes back to sleep without any more requests, she'll get a special reward (e.g., sticker, favourite treat or activity) in the morning	[]	[]	[]	[]	[]
Talk with her about why she is awake	[]	[]	[]	[]	[]
Let her know that she is upsetting me	[]	[]	[]	[]	[]
<i>When my child wakes at night and makes one or more requests, I:</i>	Never	Hardly ever	Sometimes	Often	Very often
Sing her a song, lullaby or tell a story	[]	[]	[]	[]	[]
Turn on music or radio for her	[]	[]	[]	[]	[]
Use a soothing tone of voice to tell her child it is time to go to sleep	[]	[]	[]	[]	[]
Give her her special blanket/toy/ security object	[]	[]	[]	[]	[]
Ignore her the next morning	[]	[]	[]	[]	[]
Respond quickly to her calls and requests	[]	[]	[]	[]	[]
Give your child a drink or snack	[]	[]	[]	[]	[]
Wake her up early the next morning (or put her to bed later) so that she will be more tired at night	[]	[]	[]	[]	[]
Gradually increase the amount of time I wait before responding to her	[]	[]	[]	[]	[]
Tell her she is being bad or disobedient	[]	[]	[]	[]	[]
Ask her what she needs	[]	[]	[]	[]	[]
Use an angry tone of voice to tell her it is time to go to sleep	[]	[]	[]	[]	[]

Aimée Coulombe
Curriculum Vitae

AREAS OF SPECIALIZATION AND INTEREST

- Clinical, pediatric, and health psychology;
- Parenting, sleep, and parent-child relationships;
- Mixed- and multi-method research approaches;
- Interdisciplinary training, research, and practice;
- Knowledge translation and consultation.

EDUCATION

- | | |
|-------------|--|
| In progress | <p>Doctor of Philosophy, Clinical Psychology
 Advisor: Dr. Graham Reid
 The University of Western Ontario, London, Ontario
 <i>Dissertation: Parenting at Midnight: Measuring parents' thoughts and strategies to help young child sleep through the night.</i></p> |
| 2005 | <p>Master of Arts, Psychology Advisor: Dr. Graham Reid
 The University of Western Ontario
 <i>Thesis: Sleep problems, fatigue, and psychopathology in a representative sample of Ontario children.</i></p> |
| 2003 | <p>Bachelor of Arts, Honours, Psychology Advisor: Dr. Donald Bakal
 The University of Calgary, Calgary, Alberta
 <i>Thesis: Cognitive impairment is best understood in quantitative rather than qualitative terms: Further motivation for early identification.</i></p> |
| 2000 | <p>Bachelor of Fine Arts, with Distinction, Interdisciplinary Visual Art
 The Alberta College of Art and Design, Calgary, Alberta</p> |

PRE-DOCTORAL RESIDENCY

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|-----------|--|
| 2009-2010 | <p>Pre-doctoral Resident, London Clinical Psychology Residency Consortium
 Major rotation: Pediatric Psychology, Children's Hospital, London Health Sciences Centre
 Major rotation: Child and Parent Resource Institute
 Minor rotation: Community Mental Health Program, Canadian Mental Health Association</p> |
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SUPERVISED CLINICAL EXPERIENCE, PRE-DOCTORAL

- | | |
|------|---|
| 2008 | <p>Vanier Children Services; London, Ontario <u>Child Assessment</u>
 <i>Setting: Children's Mental Health Centre, Residential care available; Complex needs, internalizing and externalizing problems, trauma</i></p> |
|------|---|

- 2008 **Emotional Disorders Clinic; Child and Parent Resource Institute; London, Ontario**
Child Intervention
Setting: Tertiary care; Interdisciplinary team approach; Developmental disabilities and comorbid emotional disorders
- 2007-2008 **Home Visiting Program for Infants; Child and Parent Resource Institute**
Child Intervention/Consultation
Setting: Trans-disciplinary team; Children 0-5 years who are medically fragile, with developmental delay, or at-risk of developmental delay
- 2006-2008 **Private Practice; London, Ontario** Child Intervention; Adult Intervention
Setting: Private practice; Range of client concerns
- 2006-2007 **University Hospital; London Health Sciences Centre; London, Ontario**
Adult Intervention *Setting:* University hospital anxiety and mood disorders service; client concerns including impulse control problems, anxiety, obsessive-compulsive disorder
- 2005-2006 **Student Development Centre; UWO; London, Ontario** Adult Assessment; Adult Intervention
Setting: University student counseling and assessment service; Range of client concerns
- 2005 **Acquired Brain Injury Rehabilitation Program; Parkwood Hospital; London, Ontario**
Adult Assessment
Setting: Hospital-based, acquired brain injury service
- 2005 **Thames Valley District School Board; London, Ontario** Child Assessment
Setting: School

PUBLICATIONS

Coulombe, J.A., Reid, G., Boyle, M. & Racine, Y. (2009). *Concurrent Associations among Sleep Problems, Indicators of Inadequate Sleep, Psychopathology, and Shared Risk Factors in a Population-based Sample of Healthy Ontario Children.* Journal of Pediatric Psychology. Advance Access published on November 18, 2009; doi:10.1093/jpepsy/jsp097

Coulombe, J.A., Reid, G., Boyle, M. & Racine, Y. *Sleep Problems, Tiredness, and Psychological Symptoms in a Population-based Sample of Healthy Adolescents.* (2010). Journal of Pediatric Psychology. Advance Access published on April 26, 2010; doi:10.1093/jpepsy/jsp097

Manuscripts in Preparation

Coulombe, J.A. & Reid, G.J. *Parenting at Midnight: Exploring parents' thoughts and strategies to help young children sleep through the night.* Manuscript in preparation.

Coulombe, J.A. & Reid, G.J. *A model of parenting under conditions of sleep deprivation and fatigue*. Manuscript in preparation.

Coulombe, J.A. & Reid, G.J. *Development and preliminary validation of the Children's Night-waking Behaviour Scale*. Manuscript in preparation.

Coulombe, J.A. & Reid, G.J. *Development and preliminary validation of the Night-waking Vignettes Scale*. Manuscript in preparation.

Coulombe, J.A. & Reid, G.J. *Development and preliminary validation of the Parental Cognitions about Night-waking Questionnaire*. Manuscript in preparation.

Coulombe, J.A. & Reid, G.J. *Development and preliminary validation of the Night-waking Strategies Scale*. Manuscript in preparation.

Published Abstracts

Coulombe, J.A., Reid, G., Bolye, M., & Racine, Y. (2006). Cross-sectional associations among sleep problems, fatigue, and psychopathology in a representative sample of healthy Ontario children. [Abstract]. *Canadian Psychology, Annual Convention Issue, 47:2a*, 45.

Coulombe, A., & Reid, G. (2005). Exploring the relationship between children's sleep problems and maternal depression: Possible mechanisms of association [Abstract]. *Canadian Psychology, Annual Convention Issue, 46:2a*, 48.

PRESENTATIONS

Poster Presentations (Academic Conferences)

Coulombe, J.A. & Reid, G.J. (2010, December). *Parenting at Midnight: Preliminary validation of the Night-waking Strategies Scale*. Poster session presented at the International Pediatric Sleep Association Congress, Rome, Italy.

Coulombe, J.A. & Reid, G.J. (2010, December). *Parenting at Midnight: Preliminary validation of the Night-waking Vignettes Scale*. Poster session presented at the International Pediatric Sleep Association Congress, Rome, Italy.

Coulombe, J.A., & Reid, G.J. (2008). "Adventures In Measurement": Towards the development of the Night-waking Vignettes Scale, the Night-waking Strategies Scale and the Parental Cognitions about Night-waking Questionnaire. Poster presented at Pediatric Sleep Medicine, Amelia Island, FL March 14 to 16, 2008.

Coulombe, J.A., & Reid, G.J. (2007). *A model of parenting under conditions of sleep deprivation and fatigue*. Poster presented at Pediatric Sleep Medicine, Amelia Island, FL March 15 to 17, 2007.

Coulombe, J.A., Reid, G.J., Boyle, M. & Racine, Y. (2006). *Sleep problems among a community sample of healthy Ontario children aged 4-16: Cross-sectional associations among sleep problems, fatigue, and psychopathology*. Poster presented

at the Annual meeting of the Canadian Psychological Association, Calgary, AB June 08 to 10, 2006.

Coulombe, J.A., Reid, G.J., Boyle, M. & Racine, Y. (2006). *Sleep problems among a community sample of healthy Ontario children aged 4-16: I- Support for parent- and youth-rated sleep problem scales derived from Child Behavior Checklist items.* Poster presented at Pediatric Sleep Medicine, Amelia Island, FL March 10 to 12, 2006.

Coulombe, J.A., Reid, G.J., Boyle, M. & Racine, Y. (2006). *Sleep problems among a community sample of healthy Ontario children aged 4-16: II- Longitudinal associations among sleep problems and psychopathology in a representative sample of healthy Ontario children.* Poster presented at Pediatric Sleep Medicine, Amelia Island, FL March 10 to 12, 2006.

Raghubar, K.P., Vernon, A.D., **Coulombe, J.A.,** & Reid, G.J. (2006). *Sleep problems among 4-18 year old children seen at a mental health clinic – II: The relation between sleep problems and attention/impulsivity, and oppositional-defiant and conduct problems.* Poster presented at Pediatric Sleep Medicine, Amelia Island, FL March 10 to 12, 2006.

Reid, G.J., **Coulombe, J.A.,** Raghubar, K.P., & Vernon, A.D. (2006). *Sleep problems among 4-18 year old children seen at a mental health clinic – I: The prevalence of common sleep problems.* Poster presented at Pediatric Sleep Medicine, Amelia Island, FL March 10 to 12, 2006.

Coulombe, A., & Reid, G. (2005, June). *Exploring the relationship between children's sleep problems and maternal depression: Possible mechanisms of association.* Poster session presented at the annual meeting of Canadian Psychological Association, Montreal, Quebec.

Academic Conference Oral Presentations

Coulombe, A. (2003, April). *Cognitive profiling of dementia within a shared care approach.* Presentation made at the University of Calgary Psychology Student Conference, Calgary, Alberta.

Multidisciplinary Professional Conference and Community Presentations

Coulombe, J.A. (2010, August). *The Wait-list Clinic at CMHA-LM: A unique, collaborative community mental health opportunity.* Canadian Mental Health Association-London Middlesex Branch. London, Ontario.

Coulombe, J.A. (2010, May). *The clinic as client: Evaluating the Sexual Behaviour Team Service at CPRI.* London Clinical Psychology Residency Consortium Resident Case Presentations. London Health Sciences Centre. London, Ontario.

- Coulombe, J.A.,** McIntyre-Smith, A., & Reid, G.J. (2008, May). *How to get your child into bed and staying in bed in the evening.* As part of the Advocacy Through Action Trios College Talks. Trios College. London.
- Coulombe, J. A.,** Reid, G., & DeOliveira, C. (2008, April). *Sleep in young children.* Staff Meeting. Home Visiting Program for Infants (HVPI), Child and Parent Resource Institute.
- Reid, G. & **Coulombe, J.A.** (2008, April). *Sleep problems among young children: Impact on parenting and children's psychopathology.* Presented at the general meeting of the London Regional Psychological Association.
- McIntyre-Smith, A., **Coulombe, J.A.,** & Reid, G.J. (2008, February). *How to get your child up and out of the house in the morning.* As part of the Advocacy Through Action Trios College Talks. Trios College. London.
- Coulombe, J.A.,** McIntyre-Smith, A., & Reid, G.J. (2008, February). *How to get your child into bed and staying in bed in the evening.* As part of the "Psychology in Everyday Life: How to Make it Work for You" 2008 library talks. Advocacy Through Action. London Public Library.
- McIntyre-Smith, A., **Coulombe, J.A.,** & Reid, G.J. (2008, February). *How to get your child up and out of the house in the morning.* As part of the "Psychology in Everyday Life: How to Make it Work for You" 2008 library talks. Advocacy Through Action. London Public Library.
- Coulombe, A.,** Glendon, M. & Reid, G. (2007, November). *Protecting Sleep for Young Children.* Child Reach. ECE Support Services, Adult Continuing Education.
- Reid, G. & **Coulombe, A.** (2007, June). *Sleep problems among young children: Impact on children's emotional and behavioural problems and on parents.* 0-6 Mental Health Symposium, Ontario Ministry of Children and Youth Services, Southwest Region.
- Tuffnail, J. & **Coulombe, A.** (2003, April). *A Shared Care Approach to the Identification and Management of Dementia.* Presentation made at the Annual Alzheimer's Society of Canada Meeting, Ottawa, Ontario.
- Coulombe, A.,** Bakal, D., Tuffnail, J., & Lohman, B. (2003, May). *Cognitive screening within shared/ primary care.* Presentation made at the Annual Symposium for Alzheimer's Disease and Related Disorders, Canmore, Alberta.
- Authored (Non-Published) Clinical Materials**
- Coulombe, J.A.** & DeOliveira, C. (2008) *Toddler and Infant Sleep Handout.* Parent resource material. Home Visiting Program for Infants, Child and Parent Resource Institute, London, Ontario.

Coulombe, J.A., with Sexual Behaviours Team, Child and Parent Resource Institute (2010). *Treatment Planning and Evaluation Tool*. Clinical tool and research measure. Child and Parent Resource Institute, London, Ontario.

Authored Non-clinical Materials

Coulombe, J.A., Otchet, F. & White, D. (2010, September). *Wait-list Times*. Introductory newsletter for potential stakeholders detailing proposal for a transdisciplinary training and counseling clinic operated in partnership with the Canadian Mental Health Association- London Middlesex. Canadian Mental Health Association London Middlesex, London, Ontario.

GRANTS, SCHOLARSHIPS AND AWARDS

Operating Grants Awarded

Reid, G.J. & **Coulombe, J.A.** (Co-PI) (2009-10). *Parenting at Midnight: Association of parenting strategy to night-waking in preschool age children over a twelve month period*. (Part 2- twelve month follow-up). Grant supported through the Department of Family Medicine, The University of Western Ontario.

Reid, G.J. & **Coulombe, J.A.** (Co-PI) (2008-9). *Parenting at Midnight: Association of parenting strategy to night-waking in preschool age children over a twelve month period*. (Part 1- six month follow-up). Grant supported through the Department of Family Medicine, The University of Western Ontario.

Reid, G.J. & **Coulombe, J.A.** (Co-PI) (2007-9). *Parenting at Midnight: Exploring parents' thoughts and strategies to help young child sleep through the night*. Grant supported through the Lawson Health Research Institute.

Reid, G.J. & **Coulombe, J.A.** (Co-PI) (2006-8). *Parenting at Midnight: Exploring parents' thoughts and strategies to help young child sleep through the night*. Grant supported through the Children's Health Research Institute.

Grants Authored as Part of Research Team

Child and Parent Resource Institute (2010-2011). *Program Evaluation of the Sexual Behaviour Team*. "Doing Grant" funded through CHEO Centre of Excellence. Shannon Stewart and Mary Ellen Marshman, Co-PIs.

Graduate-level Scholarships and Fellowships

Health Student Research Award (summer 2009), Canadian Institutes of Health Research, Government of Canada

Transdisciplinary Understanding and Training on Research – Primary Health Care Research Fellowship (TUTOR-PHC) (2007-2008), Canadian Institutes of Health Research, Government of Canada

Social Science and Humanities Research Council Canada Doctoral Fellowship Award (SSHRC DFA) (2006- 9), Social Science and Humanities Research Council, Government of Canada

Ontario Graduate Scholarship (OGS) (2006-7; declined), Province of Ontario, Ministry of Training, Colleges and Universities

Western Graduate Research Scholarship (WGRS) (2005-6), Psychology Department, Faculty of Graduate Studies, University of Western Ontario

Ontario Graduate Scholarship (OGS) (2005-6), Province of Ontario, Ministry of Training, Colleges and Universities

Social Science and Humanities Research Council Canada Graduate Scholarship Master's Award (SSHRC CGS) (2004- 5), Social Science and Humanities Research Council, Government of Canada

Ontario Graduate Scholarship (OGS) (2004-5; declined), Province of Ontario, Ministry of Training, Colleges and Universities

Special University Scholarship (SUS) (2003-4), Psychology Department, Faculty of Graduate Studies, UWO

RESEARCH EMPLOYMENT

2005- **Parenting Matters; The University of Western Ontario**

2007 Telephone Coach

-Assisted approximately 85 parents (motivation, problem-solving) with booklet-based parenting intervention (sleep or behaviour problems)

Setting: Research project, academic setting; telephone intervention

2003- **“Help I Need Someone” Study; The University of Western Ontario**

2005 Telephone Interviewer

-Completed computer assisted structured interviews with parents about their experiences seeking help for their child's mental health problems

Setting: Research project, academic setting; telephone interview

2005 **Alzheimer's and Dementia Resource Clinic; Senior's Health; Rockyview Hospital; Calgary Health Region; Calgary, Alberta**

Research Assistant

-Completed Mini-Mental Status Exams with patients

-Conducted statistical analyses of cognitive assessments

-With nurse team members and supervising psychologist, co-authored and co-presented two conference presentations

Setting: In-hospital Alzheimer's and related dementia assessment, intervention, consultation service; interdisciplinary, shared-care

TEACHING AND SUPERVISION

Teaching

- 2008 Limited Duties Appointment Lecturer. The University of Western Ontario (UWO). *Introduction to Developmental Psychology*.
- 2008-2009 Teaching Assistant. UWO. *Human Sexuality*.
- 2008 Teaching Assistant. UWO. *Exceptional Children: Behavioural Disorders*.
- 2004-2005 Teaching Assistant & Guest Lecturer, UWO. *Lecture: "Child Psychopathology"*. Developmental Psychology.
- 2004-2005 Teaching Assistant, UWO. *Psychological Aspects of Life Skills/ Health Psychology*.
- 2004-2005 Teaching Assistant & Guest Lecturer, UWO. *Lecture: "Clinical Psychology"*. Introduction to Psychology.

Academic Guest Lectures

- 2008 Guest Lecturer, UWO. *Lectures: "Health Psychology", "Community Psychology"*. Clinical Psychology.
- 2007 Guest Lecturer, UWO. *Lecture: "Qualitative Research Methods"*. Clinical Research Methods.

Supervision

- 2008-2009 Honour's Thesis co-advisor, with Dr. Graham Reid; UWO. *Lyndsay Collard. "Socio-economic status, parenting stress, and night-waking"*
- 2006-2007 Honour's Thesis advisor, UWO. *Courtney Cross. "Effects of birth-order on parental night-waking strategy."*
- 2005-2006 Honour's Thesis co-advisor, with Dr. Graham Reid; UWO. *Kim Raghubar. "Attention/impulsivity problems, sleep problems, fatigue, and child functioning: Tests of moderator and mediator models"*
- 2005-2006 Independent Study co-advisor, with Dr. Graham Reid; UWO. *Alana Vernon. "Sleep problems and Attention-Deficit/Hyperactivity Disorder symptoms in school-age children."*