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Emotional Climate and Behavioral Management during Sleep Time in Early Childhood Education Settings

Cassandra L. Pattinson, Sally L. Staton, Simon S. Smith, Dominique M. Sinclair, Karen J. Thorpe*

Queensland University of Technology, School of Psychology and Counseling and Institute for Health and Biomedical Innovation, Victoria Park Rd, Kelvin Grove, Queensland 4059, Australia

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ABSTRACT

The majority of children cease napping between 3 and 5 years of age yet, internationally, the allocation of a sleep time during the day for children of this age remains a practice in many early childhood education (ECE) settings. These dual circumstances present a disjuncture between children's sleep needs and center practices, that may cause conflict for staff, increase stress for children and escalate negative emotional climate in the room. Testing this hypothesis requires observation of both the emotional climate and behavioral management used in ECE rooms that extends into the sleep time. This study was the first to apply the Classroom Assessment and Scoring System (CLASS) Pre-K (Pianta, La Paro, & Hamre, 2008) to observe the emotional climate and behavioral management during sleep time. Pilot results indicated that the CLASS Pre-K functioned reliably to measure emotional climate and behavioral management in sleep time. However, new sleep-specific examples of the dimensions used were developed, to help orient fieldworkers to the CLASS Pre-K rating system in the sleep time context. The CLASS was then used to assess emotional climate and behavior management between the non-sleep and sleep time sessions, in 113 ECE rooms in Queensland, Australia. In these rooms 2.114 children were observed. Of these children, 71% did not sleep at any point during the allotted sleep times. There was a significant drop in emotional climate and behavioral management between the non-sleep and sleep-time sessions. Furthermore, the duration of mandated sleep time (a period of time where no activities are provided to non-sleeping children) accounted for significant independent variance in the observed emotional climate during sleep-time. The CLASS Pre-K presents a valuable tool to assess the emotional climate and behavior management during sleep-time and draws attention to the need for further studies of sleep time in ECE settings.

The quality and duration of sleep affects how individuals think, feel and behave. It is therefore not surprising that disruption to normal sleep patterns has been found to have numerous adverse social and health consequences (Carskadon & Dement, 1994; Vassalli & Dijk, 2009). A growing body of evidence attests to the importance of sleep in childhood, with a multitude of adverse social, cognitive, and health outcomes being linked to sleep loss or disruption. Specifically, sleep loss/disruption has been associated with an increased risk of childhood obesity (Bell & Zimmerman, 2010; Jiang et al., 2009), poorer neurocognitive functioning and academic performance in children and adolescents (Sadeh, 2007; Touchette et al., 2007). Much of this evidence derives from studies of sleep at night; the role of daytime sleep is not well understood. During the first three years of life, daytime sleep is a typical behavior that has a clear developmental function (Acebo et al., 2005; Iglowstein, Jenni, Molinari, & Largo, 2003; Weissbluth, 1995). Beyond these years, daytime sleep may only be beneficial in circumstances of deprivation or restriction of night-time sleep (Batejat & Lagarde, 1999; Crosby, LeBourgeois, & Harsh, 2005; Fallone, Acebo, Arnedt, Seifer, & Carskadon, 2001). The body of extant findings directs attention to practices in early childhood education (ECE) environments, across a range of international settings, where mandating sleep periods for all children occurs well beyond the age at which daytime sleep may be a biological necessity (El-Sheikh, Arsiwalla, Staton, Dyer, & Vaughn, 2013; Fukuda & Sakashita, 2002; Ward, Gay, Alkon, Anders, & Lee, 2008; Watamura, Sebanc, & Gunnar, 2002). Potential implications of such practices include: increasing conflict between children

* Corresponding author. Tel.: +61 7 3138 4707; fax: +61 7 3138 0486.
E-mail addresses: cassandra.pattinson@qut.edu.au (C.L. Pattinson), s.staton@qut.edu.au (S.L. Staton), simon.smith@qut.edu.au (S.S. Smith), dominique.sinclair@connect.qut.edu.au (D.M. Sinclair), k.thorpe@qut.edu.au (K.J. Thorpe).

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who do not sleep and their supervising care staff, raising stress for the children who no longer need/want to sleep, and non-sleeping children disrupting children who require day-sleep. The current study was conducted to address these possibilities. The interactions within a range of Australian ECE rooms were observed during the non-sleep and sleep time sessions, on one day, using the Classroom Assessment and Scoring System (CLASS) Pre-K (Pianta, La Paro, & Hamre, 2008). The CLASS Pre-K ratings assessed the impact of variation in duration of mandated sleep time and the level of continuity of emotional climate and behavioral management across non-sleep and sleep time sessions. In the current study, the term *sleep time* is used in reference to naptime, rest time, or daytime sleep as this is common usage in the Australian ECE context.

The need to assess emotional climate and behavioral management during sleep time

Across the first 4 years of life, human sleep–wake cycles evidence a rapid developmental transition from polyphasic sleep–wake patterns in infancy (where a child sleeps multiple times throughout the day and night), to predominantly biphasic patterns (nap only once during the day) in toddlerhood through to mature monophasic (where sleep is consolidated into the night period) sleep–wake cycles (Acebo et al., 2005; Iglowstein et al., 2003; Weissbluth, 1995). By age 4, most children have achieved monophasic sleep patterns (Acebo et al., 2005; Blair et al., 2012; Iglowstein et al., 2003), yet the scheduling of sleep time for children of this age is a feature of many ECE settings.

Currently, data from Australia indicates that daily programming in ECE settings includes scheduling for sleep time which exceeds 2 h, with these periods often mandated for all children until school entry at age 6 (Staton, Smith, Pattinson, & Thorpe, 2013). Internationally, information on daytime sleep practices in ECE settings is not well documented. However, there is evidence that mandated sleep time occurs in the United States of America (USA) with research methodologies and outcomes documenting extended periods in which children are required to lie without alternative activities (Kurdziel, Duclos, & Spencer, 2013; Ward, Gay, Alkon et al., 2008; Ward, Gay, Anders, Alkon, & Lee, 2008; Watamura et al., 2002). For example, Ward, Gay, Anders, et al. (2008) documented a mandated sleep period of two and a half hours for all children aged between 2.5 and 4.9 years in two university affiliated full-day child care centers. Additionally, Watamura and colleagues (2002) observed children aged between 2.8 and 4.3 years in a university-based full day childcare center in the Midwest. They documented that rest time consisted of two parts, an initial 50-min period during which all children were required to lie on their cots only, followed by an optional rest period during which those children not sleeping, were provided activities in another room. Thus, a maximum total sleep period of 2.5 h was documented. More recently, Kurdziel et al. (2013) observed 77 children (aged between 3 and 5.5 years) in six preschool classrooms with a scheduled classroom nap time of approximately 2 h. Although these studies are limited to small and selected samples, they suggest that practices of sleep scheduling in ECE are not unique to Australian contexts. Furthermore, studies from Japan indicate that there is a national mandated sleep time of 1.5 h for all children attending nursery schools aged between 2 and 5 years (Fukuda & Sakashita, 2002; Komada et al., 2012).

The scheduling of sleep time for all children, when for most sleep is no longer biologically required (Acebo et al., 2005; Iglowstein et al., 2003), raises the possibility of two disruptive and potentially detrimental mechanisms. First, for children who sleep during the ECE day, there may be a reduction in the homeostatic sleep drive such that night-time sleep is affected (Fukuda & Asaoka, 2004; Fukuda & Sakashita, 2002). The net benefit of a sleep time may only pertain for children who have insufficient night sleep at home (Kelly & El-Sheikh, 2011), or who have not yet ceased to require additional sleep during the day in accordance with individual difference in normative patterns of sleep development (Acebo et al., 2005). Second, for those children who cannot sleep, the experience may be stressful, particularly in circumstances where alternative activities are not permitted (Ward, Gay, Alkon et al., 2008). In the absence of alternative activities, children unable to sleep may transgress behavioral expectations, be viewed as behaviorally difficult by staff and therefore be reprimanded, or experience stress. Mandating sleep time for children who do not sleep may also present an issue of behavioral management. Difficulties arise when the rights of those to have an appropriately quiet environment for those who sleep, is pitched against the management of children who do not require sleep. To test both the biological (homeostatic drive) and behavioral hypotheses requires observation of the emotional quality of the environment in the ECE classroom alongside the behavioral management strategies used during sleep time.

Although the implications of mandating a sleep time in ECE services on children's sleep patterns are currently unknown, emerging evidence suggests that napping in pre-school classrooms may have disruptive effects on night-time sleep that endure beyond napping cessation. Fukuda and Sakashita (2002) compared the sleep patterns of children attending *kindergarten programs*, where napping was optional, with those of children attending *nursery programs*, where all children were required to nap for 1.5 h daily. The authors reported that children attending nursery programs, with mandated sleep periods, had significantly later bed-times, delayed sleep onset, shorter night-time sleep and more unwillingness to attend the program, than those children for whom sleep was optional. A follow-up study found that the sleep difficulties experienced by children attending nursery programs continued into their elementary school years, long after their afternoon nap routine had ceased (Fukuda & Asaoka, 2004). Two further studies of preschool children (Acebo et al., 2005; Ward, Gay, Anders et al., 2008), found that napping was associated with poorer night time sleep and more night awakenings. Furthermore, Lam, Mahone, Mason, and Scharf (2011) found that daytime napping in preschoolers was negatively correlated with performance on neurocognitive testing. The designs of these studies do not allow the direction of effect between disruption of night sleep and daytime napping to be fully understood. To date, only the studies of Fukuda and colleagues (Fukuda & Asaoka, 2004; Fukuda & Sakashita, 2002) present any data on direction of association, suggesting that napping under the mandated conditions of the ECE setting precedes long-term sleep disruption. The possibility that a third factor explains the associations must also be considered. For example, poor health or stressful life circumstances may drive both sleep disruption and poor cognitive functioning. The available studies indicate the need for more knowledge of such underlying mechanisms.

Sleep time in ECE rooms for 3- to 5-year-olds has the potential to present emotional and behavioral challenges both for children and their supervising teachers. Currently, there are no studies that have examined this hypothesis; however, two studies have provided indirect evidence for increased stress. Ward, Gay, Alkon et al. (2008) provided preliminary evidence for this hypothesis, with 50% of children ($n = 38$) observed during sleep time at childcare classified as '*problem nappers*' (children exhibited disruptive behavior or difficulty settling, requiring teacher assistance). Compared to non-problem nappers, problem nappers had significantly higher levels of cortisol directly following the sleep period. This finding may indicate raised stress associated with an unwanted experience. Additionally, evidence from children's accounts of childcare suggests that naptime is a disliked and unwanted experience for many 4-year-olds. In a study of children's accounts of their