

Submitted by Sanchia De'Cage to the University of Exeter
as a thesis for the degree of Doctor of Educational Psychology in Educational,
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Signature:

Sanchia De'Cage (650049302)

Dedication

I dedicate this thesis to:

My mother, Marlene Jenas,

For pouring everything that you have ever had into loving and supporting me and for shaping me into the person I have become. Thank you for literally going the extra mile to see me to the finish line.

You nurtured in me the tools I needed to get here; the resilience to know I can overcome, the patience to persist; and the commitment to set my intentions on the journey toward my goals.

You inspire me always.

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ABSTRACT

The purpose of this study was to contribute to the paucity of literature present on educational psychology involvement in supporting primary school-aged children's sleep. The research was formed using a pragmatic, mixed-methods approach with a two-phase design. Phase one explored the views of 59 participants (teachers, n= 16; parents/carers, n= 21; children, n= 22) about children's sleep, their academic outcomes and psychosocial functioning. There were some associations between parent, child, and teacher reports of children's sleep-related difficulties, academic outcomes and aspects of children's psychosocial functioning.

Phase two adopted a time-series pre- and post-intervention design with the aim of evaluating a school-based, six-week Sleep Club intervention for children. Twenty-nine participants (teaching assistants, n= 2; parents/carers, n= 13; and children, n= 14) took part in phase two, with the findings drawing on evaluations, quizzes, field notes, surveys, and parent interviews. Six children were selected to provide greater insight into parent and child views through case study analysis. At the end of the intervention, there was an increase in children's sleep-related knowledge, and there were improvements in many aspects of children's sleep-related behaviours.

Thematic analysis identified that the Sleep Club facilitated communication about sleep between children and their parents and raised children's awareness and understanding of their sleep. Children enjoyed being part of a club with other children, from whom they felt they were able to learn. Learning about emotions, sleep and the body was noted by several children, though some children did not enjoy completing the given questionnaires. Overall, participants felt that the individual sessions and the intervention could have lasted longer than the time offered. Twenty-two participants (76%, including parents, children, and school staff) reported that they would recommend the Sleep Club intervention to others. The role of the educational psychologist in supporting children with sleep difficulties is discussed.

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LIST OF DEFINITIONS

Bedtime resistance A child who falls asleep in their bed, who struggles at bedtime, needs a parent in the room or is afraid of sleeping alone.

Sleep-onset delay Taking more than 20 minutes to fall asleep.

Sleep-onset latency The between going to bed and falling asleep.

Sleep duration The time that a child spends asleep.

Sleep anxiety Related to the child being fearful of falling asleep alone, having trouble sleeping away from home, needing a parent in the room.

Night waking Children who wake up during the night and have difficulty falling back to sleep, requiring parental support to fall back to sleep, and frequent night wakings.

Parasomnias Sleep disorders of the central nervous system such as bedwetting, headbanging, night terrors, sleepwalking and talking during sleep.

Sleep-disordered breathing Snoring and upper airway resistance, obstructive sleep apnoea, which restricts breathing during sleep.

Daytime sleepiness Feeling tired during the day.

Probable sleep difficulties A child whose sleep difficulty score is above the mid-point of the associated scale indicative of a sleep difficulty.

Polysomnography The monitoring of oxygen levels, the brain, heart, and skeletal muscles to enable the matching of physiological behaviour to the sleep stages.

Adapted from van Litsenburg, Waumans, van den Berg, and Gemke (2010)

CHAPTER 1. INTRODUCTION

1.1. OVERVIEW OF THE RESEARCH

According to Maslow (1948) sleep is one of the fundamental physiological needs that humans require for survival. Sleep is an essential behaviour that all humans engage in throughout their lives. However, what may appear to be a simple process of falling asleep and waking up, is in fact, a behaviour that researchers argue is still relatively misunderstood (Palmer & Alfano, 2017; Vandekerckhove et al., 2012). Hiscock et al. (2015) reported that the benefits of sleep have a wide impact on a range of positive outcomes for children, yet up to 62% of children experience difficulties with their sleep (McDowall, Galland, Campbell, & Elder, 2017).

Research that explores the role of educational psychologists in supporting sleep difficulties in primary school-aged children is scarce. As a brief example, I completed an EBSCO journal database search using the parameters of educational psychology, educational psychologist, and children's sleep. One outcome was found by Rydzkowski, Canale, and Reynolds (2016). The paucity of research in this area for educational psychologists is discussed further in the literature review.

This study involves a small-scale research project that has two phases. Phase one explores the perspectives of children and their parents, and teachers about primary school-aged children's sleep. I explore the impact of primary school-aged children's sleep on their daytime sleepiness, academic outcomes, and psychological and social (psychosocial) behaviour.

Phase two evaluates the impact of a Sleep Club intervention that I have designed to assess its impact on children's sleep-related behaviours and sleep knowledge in a pre- and post-intervention model. I used case studies with six participants from phase two to provide greater depth of analysis. Rather than

presenting two individual papers, phase two is informed by the results of phase one, with the continuity of participants, and a shift in research focus.

1.2. CHILDREN'S SLEEP AND THE ROLE OF THE EP

The role of the educational psychologist (EP) is diverse and changes over time (DfES, 2006; Stobie, 2002a; Stobie, 2002b). EPs focus on enhancing social justice for children and young people who are at risk of social exclusion, underachievement and disaffection (HCPC, 2015). The British Psychological Society (BPS; 2002) suggested that one primary role of the EP is to promote the well-being and needs of children and young people to help them to achieve positive outcomes. More specifically, EPs do this in an educational context by evaluating the different factors that influence a child's experience (HCPC, 2015).

Cameron (2006) suggested that EPs draw on psychological knowledge to inform and enable their clients to identify and make positive changes. EPs work to support, enhance, and develop changes with people, from the undesirable or maladaptive to the desirable and adaptive. Clause one of the Health and Care Professions Council's (HCPC, 2015) Standards of Proficiency document has shown that "practitioner psychologists must practice safely and effectively within their scope of practice" (p.7). In this review, I argue that it is within the scope of practice for EPs to utilise and to build upon their initial training to support positive change for parents and children with non-clinical sleep difficulties. The nature of non-clinical sleep difficulties will be discussed further in Chapter Two.

The effects of sleep are wide-ranging, and they cross over into areas of health (Sadeh, Raviv, & Gruber, 2000) and cognition (Curcio, Ferrara, & De Gennaro, 2006). Astill, Van der Heijden, Van IJzendoorn, and Van Someren (2012) and O'Brien (2009) have highlighted the associations between sleep and psychosocial functioning in children with emotional and behavioural difficulties. Fallon, Woods, and Rooney (2010) stated that EPs put in practice their training as scientist-practitioners to utilise their knowledge of "psychology, consultation,

assessment, intervention, research, and training” to support children and young people in different contexts (p.4).

Educational psychologists are well placed to observe children in multiple contexts (home, school, the community), while gaining the views of those involved with them (for example, parents, teachers, and other professionals). Such practice is in line with the Children and Families Act (DfE, 2014) to empower the voice of parents and their children to understand their individual experience. Buckhalt, Wolfson, and El-Sheikh (2009) recommend that educational psychology training courses explicitly train psychologists on how to recognise, assess and intervene on sleep difficulties in children and to support the delivery of educational sleep programmes. Rydzkowski, Canale, and Reynolds (2016) support this, suggesting that EPs, parents, and professionals require greater awareness of the role of children’s sleep on child development, behaviour, emotional regulation, and cognition.

1.3. POSITIONALITY AND CONTEXT

I am a female trainee educational psychologist (TEP) in my final year of training. During the study, I was on a two-year placement in a local authority within the top 60 most deprived areas (out of 326 local authorities) in England (Ministry of Housing, Communities, & Local Government, 2015). This local authority, in which the research was conducted is in the East of England, and I was permitted to conduct my research in six schools.

On the 18th February 2017, I attended an accredited level three sleep-training course. This course consisted of six-modules that explored the key factors involved in sleep difficulties throughout childhood. The course explored cognitive, developmental, biological, and nutritional factors that the literature has shown has an impact on children’s sleep. Additionally, the course explored behavioural, health and environmental factors that may affect sleep. Following the training, I completed the required coursework necessary for the sleep training accreditation and certificate. I attended this course aiming to be better

informed to design and deliver a robust sleep-intervention. The experience made me mindful of how useful a greater focus on children's sleep, and sleep difficulties could be in educational psychology practice.

1.4. AIMS AND OBJECTIVES OF THE RESEARCH

The literature review in the following chapter explores some of the research into children's sleep. Much of this research covers children with at least one psychiatric or medicated condition or disability and focuses on children during infancy or adolescence. The literature review highlights that there is a distinct lack of research in educational psychology focused on sleep-related factors in primary school-aged children who do not have a psychiatric or medical condition. The current study seeks to explore the views of children, teachers, and parents to gain an understanding of how they perceive and identify children's sleep-related behaviours and daytime sleepiness. A school-based Sleep Club intervention was created, delivered and the outcomes evaluated with an aim to explore the impact for primary school-aged children.

RESEARCH QUESTIONS (RQs)

PHASE ONE

1. To what extent do primary school-aged child participants experience difficulties with their sleep according to parents, teachers and children?
2. To what extent do parents, teachers and children report daytime sleepiness in specific school-aged children?
3. What are the relationships between specific children's sleep, their psychosocial functioning, and their academic outcomes?

PHASE TWO:

4. What are the reported differences in specific children's sleep behaviour between the pre- and post-intervention periods?
5. How do selected participants describe individual primary school-aged children's sleep-related experiences?
6. What is the impact of the psycho-educational intervention on child participants' sleep knowledge post-intervention?
7. How do participants evaluate the Sleep Club intervention and process?

CHAPTER 2. LITERATURE REVIEW

'If sleep does not serve an absolute vital function, then it is the biggest mistake the evolutionary process ever made'.

-Rechtschaffen (1971, p.88)

2. INTRODUCTION

The literature review provides a critical account of the research that has explored a range of factors relating to children's sleep (the literature review search strategy is in Appendix 1, p.232). In this review, I will explore the area of sleep difficulties and the prevalence of sleep difficulties among children. I provide an overview of the professionals prominently involved in children's sleep difficulties, emphasising why educational psychologists (EPs) are well placed to work in this area. I give attention to the relationship that sleep-related factors have on academic outcomes and children's psychological and social (psychosocial) behaviour. I explore some of the interventions used to overcome sleep difficulties before concluding by linking the area of research focus to the gaps in the current literature.

2.1. PROBLEMATIC SLEEP

Difficulties with sleep can be categorised loosely into two main areas; clinical sleep disorders and sleep difficulties. Sleep disorders cause substantial effects, impairment, or distress in one or more functional domains meeting the threshold of a clinically relevant diagnostic criteria. Sleep disorders may include criteria under the Diagnostic Statistical Manual (DSM; APA, 2013), the World Health Organisation's (WHO) International Statistical Classification of Diseases (ICD-10; WHO, 1993) and the International Classification of Sleep Disorders (ICSD; American Academy of Sleep Medicine, 2001). Many of the disorders included under these diagnostic manuals include clinical conditions such as parasomnias (disorders of the central nervous system that affect the continuance of sleep

once it has begun) for example, sleepwalking, sleep talking, bruxism (tooth grinding) and bedwetting (Quine, 2001).

Quine (2001) reported that in contrast, sleep difficulties are more common than sleep disorders and they include dyssomnias (problems “initiating or maintaining sleep, or of excessive sleepiness”; p.203), sleep-related anxiety, deficient sleep, and poor sleep practices. Dyssomnias can involve intrinsic problems inside of the body; such as obstructive sleep apnoea (obstruction of the upper airways during sleep) and extrinsic problems caused by stimuli outside of the body (such as a child’s response to parental boundaries). Dyssomnias can also involve circadian rhythm disorders (irregular sleep-wake behaviours according to the 24-hour day). The focus of this literature review is on non-clinical sleep difficulties. During this review the terms sleep difficulties and sleep problems; and sleepiness and tiredness may be used synonymously and respectively, which reflects the varied language used in the literature reviewed below.

2.2. THE PREVALENCE OF SLEEP DIFFICULTIES

Research has shown that in a typical classroom of 30 pupils, between three and 12 children experience problems with their sleep (Galland & Mitchell, 2010; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001). The Children’s Sleep Charity (2016) identified that at some point during their childhood approximately 40% of children will experience problems with their sleep. However, other researchers assert that the number of children with sleep difficulties ranges between 11% to 62% (Galland & Mitchell, 2010; Gregory, Willis, Wiggs, Harvey, and The STEPS team, 2008; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001; McDowall et al., 2017).

Quine (2001) suggested that such wide-ranging statistics may demonstrate individual differences on some levels including parent educational level, whereas Cassoff, Knäuper, Michaelsen, and Gruber (2013) identified factors such as biological, family and cultural norms. Owens, Maxim, Nobile, McGuinn, and Msall (2000) found that when surveyed, children aged five to 10 years old without a medical or psychiatric diagnosis, reported problems with their sleep

including sleep deprivation and daytime sleepiness. Though children are especially dependent on other people to achieve the quality and quantity of sleep that they require, Paavonen et al. (2000) suggested that one-third of sleeping problems may still go unnoticed.

Zimmerman (2008) and Blair et al. (2012) advised of generational changes in trends relating to the amount of sleep that children achieve, which Zimmerman suggested is interrelated with an increase in media use. The sleep habits of children over the past 35 years may have changed, though findings from the literature have indicated intergenerational changes. Stein et al. (2001) found that current sleeping problems in children aged between four and 12 years of age were associated with a history of sleeping problems before the age of two. These findings are reinforced by Friedman, Corley, Hewitt, and Wright Jr (2009) who found that sleep difficulties for children at four years of age were associated with sleep difficulties several years later at the age of 17. The cumulative nature of sleep difficulties highlights the importance of early intervention, with an aim to prevent the prolonged development of sleep difficulties throughout childhood and adolescence.

McDowall et al. (2017) proposed that children's sleep behaviours may be perceived and defined differently by different parents. This perception may be dependent upon what parents constitute to be typical and atypical or problematic behaviour, and it may account for some of the variability in identifying sleep difficulties. For example, a parent who believes that snoring is typical sleep behaviour in children may be less likely to identify it as a possible symptom of sleep apnoea and to seek professional support for it. Sadeh (1996) further states that parental expectations and beliefs may have an impact on identifying problematic sleep patterns. However, understanding if parents seek professional support for primary school-aged children's sleep remains unclear.

In their study, Kanis, Schwerdtle, Kübler, and Schlarb (2015) found that parents frequently identified that psychological factors affected their child's sleep, for example, anxiety at school and problems with peers. As a result, the researchers highlight the importance of delivering both theoretical and practical

sleep education to parents. The Department for Education (DfE, 2016) identified the family as a supportive and protective factor for children and young people's mental well-being. Government recommendations have therefore supported the promotion and investment of the mental health of parents and children to avoid difficulties in later life (DfE, 2016). Including parents in interventions to support their children's sleep, could, therefore, be a worthwhile strategy.

While it is evident that sleep difficulties in school-aged children may be fairly common, they may be unidentified (Mindell & Owens, 2003), or misinterpreted (Sadeh, Raviv, & Gruber, 2000), which could exacerbate cognitive or psychosocial functioning difficulties. To address such issues Paavonen et al. (2000) recommends that information gathering about sleep difficulties include both the parent and the child. Involving parents and children in the assessment of sleep could help to provide greater richness to the information obtained by EPs by enabling multiple perspectives to be explored.

2.3. UNDERSTANDING CHILDREN'S SLEEP

Several professionals who work with children with sleep difficulties and sleep disorders primarily work in the healthcare sector, with many working at a clinical level of significance (Appendix 2, p.234). The area of sleep difficulties appears to be multi-disciplinary and one that affects children in some domains (cognitive, emotional, social, and physical) and contexts (home, school, and the community; Clinical Innovation & Governance, 2016). Horne (2001) stated that sleep disturbances are one of the most common complaints brought to general practitioners (GPs), though Blair et al. (2012) argued that sleep difficulties in children are often unreported by parents. School-aged children are approximately 26% and 13% less likely to be screened by paediatricians and nurse practitioners for sleep difficulties when compared to infants/toddlers and pre-schoolers respectively (Mindell & Owens, 2003).

Aronen, Paavonen, Fjallberg, Soininen, and Torronen (2000) highlighted that children may display context-specific (home, school, or group situations) sleep-related behaviour that may not be considered problematic by the parents or teachers in those contexts. Such conflicting findings highlight the importance of

obtaining sleep-related information about children from a variety of sources, including children and the adults around them. Luyster, Strollo, Zee, and Walsh (2012) supported this and recommend non-clinical presentations of sleep difficulties, such as those that are initiated and maintained by environmental or behavioural factors present an opportunity for non-medical professionals to intervene.

To target this issue, EPs can use their expertise in problem-solving; their knowledge of people and processes of change; and their understanding of the interrelated and often interdependent systems that may be affected through direct and indirect change (Stobie, 2002a). EPs can use their skills in training and communicating with parents, teachers, and children to gather contextual information and to explore different perspectives (HCPC, 2015).

2.4. HOW MUCH SLEEP IS ENOUGH IN CHILDHOOD?

Sleep is widely known to be an essential activity involved in rest, human health, and optimal functioning. The amount of sleep that is needed varies throughout the lifetime with infants typically reducing the amount of sleep that they need as their age advances into early and middle childhood. Recommendations for the sleep duration or quantity that children require across various age ranges vary amongst professional guidelines and between individuals. It should be noted that there is no standardised or governing criteria that dictates how much sleep an individual must have at different ages (Galland & Mitchell, 2010). However, the variety of recommended sleep times by different professionals may be confusing to parents, especially with regard to sleep duration being highly variable in children (Astill, Van der Heijden, Van IJzendoorn, & Van Someren, 2012).

Buckhalt (2012) suggested that great differences are found regarding the duration of sleep that is ideal for children of the same age. Some professionals have attempted to quantify the amount of sleep needed for optimal functioning by providing recommendations of healthy levels of sleep according to child age. For example, Hirshkowitz, et al. (2015) put together an 18-member multidisciplinary expert panel to review healthy sleep practices and sleep

duration across the lifespan. They suggested age-appropriate guidelines for healthy sleep across childhood, but recognised that sleep duration might be variable across the ages, with some individual fluctuations observed.

Hirshkowitz et al. (2015) proposed that school-aged children (aged six to 13) whose optimal levels were recommended as between nine to 11 hours of sleep, whereas Galland and Mitchell (2010) recommended 10 to 11 hours of sleep for school-aged children (aged six to 12 years of age). In contrast, the National Health Service (NHS, 2015) put forward guidance regarding how much sleep children aged six to 11 should expect to have. The guidance ranged from 10 hours and 45 minutes of sleep for six year olds to nine hours 30 minutes at age 11. Despite these recommendations for the number of sleep hours according to age varying across different professional guidelines, it is evident that these recommendations advise that children should fall asleep or awaken within a similar time frame.

2.5. THE ROLE OF CULTURE IN SLEEP

O'Brien (2009) asserted that there are difficulties with conceptualising what constitutes normal or ideal sleep durations, as sleep may be influenced by societal or parental expectations and environmental demands. Professional recommendations for sleep duration in infancy and childhood may vary, and over time, changes in children's sleep may reflect generational and cultural trends (Blair et al., 2012). Blunden, Benveniste and Thompson (2016) highlighted the importance of cultural differences that may affect sleep hygiene. For example, differences among cultural or spiritual behaviours that impact eating and sleeping times, habits and locations, or that encourages sleep disruption through the attendance of religious ceremonies (such as midnight mass).

Flaskerud (2015) put forward that some Mediterranean countries and latin cultures engage in two phases (bi-phasic) of sleep through participation in a siesta. Such practices may impact on the times that children eat and therefore have an impact on their sleep. In addition, Blair, Humphreys, Gringras, Taheri, Scott, Emond, et al. (2012) found that children of a non-White ethnicity and

children from larger families slept less than their respective counterparts, had consistently later bedtimes and woke later than White children.

Mindell, Kuhn, Lewin, Meltzer and Sadeh (2006) stated that “culturally-based differences in sleep practices (e.g. sleeping space and environment, solitary sleep vs. co-sleeping, use of transitional objects”; p.1264) can shape what is normalised behaviour for families. Coupled with this, is that some cultures place a greater emphasis upon the inclusion of wider family members in direct and frequent parenting practices. It may be that such families reduce the pressures faced by parents by providing a social support mechanism, which reduces the impact of the child’s sleep problem on single or dual parent families.

Some cultures maintain evolutionary and mammalian sleeping practices of children sleeping with the parent (termed co-sleeping or bed-sharing). Quine (2001) found that co-sleeping was more likely to occur with stressed parents, those with smaller families and with more responsive parents. Mileva-Seitz, Bakermans-Kranenburg, Battaini and Luijk (2017), for example, suggested that bed-sharing is typically lower in western cultures than in some developing countries within Africa and Asia. Therefore bed-sharing may be based on routine, cultural beliefs and practices or parenting preference.

Although McDowall, Galland, Campbell and Elder (2017) recommended that parent knowledge of typical and atypical sleep behaviours is essential in identifying sleep problems in children, it is also of utmost importance that professionals working with families of children with sleep difficulties identify that sleep problems may be normalised in groups of families within particular cultural groups. An understanding of cultural and individual differences in identifying problematic sleep is then highly subjective. Therefore is important in sleep research to avoid bias in screening questions (such as labelling particular sleeping practices as problems), and to be aware that in the relatively multi-cultural society of the UK, that family culture and beliefs may differ from western norms and ideals.

It can be seen that the rating of the adequacy of sleep may be subjective and relate to a number of factors including sleep quality, sleep quantity, and cultural

differences. Blair, et al. (2012) asserted that due to large inter-individual and intra-individual differences that exist between children, there are a number of important factors for professionals to consider. When working with families, EPs can use their knowledge of the interaction of culture as a systemic factor in understanding choices and supporting individualised recommendations to be made. Sensitivity to this issue is important when working with families who may be less likely to subscribe to top-down recommendations that do not complement the functions behind their child's behaviour, and parental goals.

2.6. DAYTIME SLEEPINESS

Mindell and Owens (2003) proposed that daytime sleepiness is the outcome of inadequate or disturbed sleep. Sleepiness may present through overt symptoms such as yawning or drowsiness or through deficiencies in mood, behaviour (such as hyperactivity and poor impulse control), attention, social skills, and learning (Mindell & Owens, 2003). Maldonado, Bentley, and Mitchell (2004) contributed that sleepiness is a longing for sleep because of the physiological drive that promotes sleep to take place. Könen, Dirk, and Schmiedek (2015) stated that daytime activities influence daytime sleepiness. Whereas Dewald, Meijer, Oort, Kerkhof, and Bögels (2010) suggested that an increase in daytime sleepiness is the most common direct symptom of inadequate sleep, disturbed sleep, or a combination of the two. Such symptoms present an opportunity for professionals around the child to identify potential sleep difficulties.

Appleton (2000) highlighted that children spend a large proportion of their time at school, therefore, how teachers perceive the consequential effect of children's sleep is of key interest. Daytime sleepiness in children presents an opportunity for teacher input and assessment. However, some studies have reported that teachers may have poor sleep-related knowledge (Kira, Maddison, Hull, Blunden, & Olds, 2014; Rigney et al., 2015). It is therefore of interest to understand what factors parents, teachers and primary school-aged children report are affecting children's sleep.

In a meta-analysis, Dewald et al. (2010) reviewed 50 studies to explore the findings of sleepiness (n=19,530), sleep duration (n=15,199), sleep quality (n=13,631), and school performance. Twenty-six studies had an association with one of the sleep domains for children and young people aged eight to 18. Dewald et al. concluded that sleepiness might be a more relevant construct for measuring poor sleep as although sleep quality has a larger impact on school performance than sleep duration, sleepiness has a far superior impact.

Sadeh, Gruber, and Raviv (2003) and Vriend et al. (2013) found that a sleep deficiency of even one hour could worsen children's performance on working memory tasks. Gathercole and Alloway (2007) defined working memory as 'being able to hold in mind and mentally manipulate tasks over short periods of time' (p.4). For example, as little as one hour less of sleep over a period of four days resulted in daytime sleepiness; emotional regulation difficulties; and cognitive impairment (in short-term and working memory, attention, and math fluency). It is therefore unclear if sleep duration, daytime sleepiness, or a complex interaction between the two factors have an impact on academic outcomes for children.

Sleep deprivation caused by not getting enough sleep may contribute to fatigue, which is more evident during the middle and end of the school week (Albu, Crăcană, & Prejbeanu, 2014). While one hour may be a small amount of time in relation to the number of hours in one day, it is apparent that even small fluctuations in children's sleep may have a wide-ranging impact on several factors associated with children's later outcomes. Lemola et al. (2011) supported these findings and found a positive association between teenagers playing computer games during the night and a greater occurrence of daytime sleepiness and depression.

Eggermont and Van den Bulck (2006) found that teenagers reported using technology (television, computer games, and music) to help them to fall asleep, despite the teenagers obtaining less sleep and experiencing greater tiredness. Eggermont and Van den Bulck found the habitual use of technology was associated with poorer sleep and daytime sleepiness for teenagers, while

Mindell, Meltzer, Carskadon, and Chervin (2009) reported a loss of up to 36 minutes of daily sleep for children with televisions in their bedrooms.

Sleep difficulties in children deserve key attention to help children to overcome the barriers that can have an impact on their development and ability to achieve their full potential. Such a focus complements the work of the EP, to help to raise academic achievement, and to provide psychological support to children to help to promote greater well-being (HCPC, 2015).

2.7. THE ROLE OF SLEEP ON COGNITION, LEARNING AND ACADEMIC ATTAINMENT

Quine (2001) stated that the physiology of sleep has two overarching categories. Namely, deep sleep, formally known as non-rapid eye movement (NREM) sleep, and dream sleep, formally known as rapid eye movement (REM) sleep. During NREM sleep, four stages of increasing sleep depth occur, from light sleep in stage one, to deep sleep in stages three and four (Airhihenbuwa, Iwelunmor, Ezeqwe, Williams, & Jean-Louis, 2016; Palmer & Alfano, 2017). The deepest levels of sleep have been found to promote the consolidation of declarative memory, as found in factual recall (Diekelmann & Born, 2010) and learning processes (Curcio et al., 2006).

Several studies have reported a range of negative consequences associated with sleep loss. For example, inadequate sleep may result in poor academic grades (Buckhalt et al. 2009), poor attentional skills (Dahl, 1996; Vriend et al., 2012), and poor word memory skills (Carskadon, Harvey, & Dement, 1981). Further, inadequate sleep is related to poor mental flexibility (Kim, Lee, Lee, Hong, & Cho, 2011); inhibited math fluency skills (Carskadon et al., 1981); and more internalising and externalising behavioural problems (Astill et al., 2012).

In the area of working memory, Hiscock et al. (2015) explored the benefit of sleep for 244 children aged five to 12, with a diagnosis of attention deficit hyperactivity disorder (ADHD). The researchers delivered a brief behavioural sleep intervention consisting of two face-to-face consultations and one follow-up

phone call to parents was provided by the researchers. The researchers found that parents and teachers respectively reported more positive family and behavioural outcomes and improved working memory abilities. Further, approximately 50% to 75% of ADHD-related symptoms (inattention and hyperactivity) were mediated through efficient sleep, which was sustained at three and six months respectively.

Children may try to fight symptoms of tiredness by engaging in stimulating activities or behaviour that may resemble behaviours commonly associated with attention deficit-type pathology (Twery, 2002). Such conduct may contribute to an over-identification of ADHD-type behaviours in some children, especially as Dahl (1999) reports that both sleepiness and ADHD-type conditions tend to respond to stimulant medication.

Hiscock et al. (2015) concluded that their brief behavioural sleep intervention produced more benefits than those found in studies that used medication to target ADHD symptoms. However, parents were aware of the allocation of their child to the control or intervention group. This awareness could have produced a response bias with parents reporting inflated improvements in their child's outcomes (Oswald, Sherratt, & Smith, 2014). Nevertheless, the findings have indicated a benefit of sleep interventions as a time- and cost-effective way to mediate the effects of sleep difficulties in children.

In a study of 110 eight to 11-year olds in Germany, Könen et al. (2015) found that a previous night's sleep accounted for between eight- and nine-percent of academic fluctuation in the morning and afternoon respectively. Daytime sleepiness was specifically associated with lower levels of academic performance during the afternoon, with children with lower academic performance especially susceptible to the negative effects of a previous night of sleep loss. Könen et al.'s findings suggest a relationship between sleep, daytime sleepiness, academic performance and demands throughout the school day, though it is unclear if children in Britain would have the same outcomes.

In contrast, Kim et al. (2011) studied 29, nine-year-old Korean children with a diagnosis of sleep-disordered breathing (SDB, a condition that can interrupt sleep due to a lack of oxygen intake). Children without SDB performed slightly better academically on their mid-term examinations than those in the experimental condition. Though, Kim et al. did not find a statistically significant relationship between SDB and overall academic performance. Similar outcomes were reported by Kaeming et al. (2003), who found that participants with and without SDB did not display differences in their reading, writing and math standardised test scores. What is clear is that these findings have presented ambiguity in the literature about the relationship between sleep and academic progress.

Given the impact of sleep loss on the health, psychosocial functioning and cognition of children, children's sleep difficulties present an opportunity for EPs to build upon their professional knowledge, and to expand their practice in contributing to early interventions for the promotion of health, psychosocial functioning, and academic outcomes of all children. EPs can work collaboratively with their service users to empower families and school staff, to share the factors most relevant to them that may lead to more effective interventions (Gruber, 2016).

2.7.1. MEASURING ACADEMIC OUTCOMES

Assessing children's academic progress takes place through a variety of objective and subjective measures, such as standardised tests, and teacher or self-report ratings of children's progress using average grades or teacher comments. However, Curcio et al. (2006) highlighted that the differences in measurement between schools limit the comparability of studies. In contrast, self-report of academic grades as a subjective measure provides an assessment of children's performance over time in relation to the curriculum. Curriculum-related assessment is more relative to the curriculum than objective measures such as achievement tests or cognitive testing as these methods may provide only a snapshot of a child's academic potential on a particular day.

To overcome difficulties with measuring academic achievement, Curcio et al. (2006) recommend the use of multi-measure approaches that factor in some views of academic attainment. I will be using such an approach in the current research. Aronen et al. (2000) encouraged the use of multi-measure approaches and recommended the triangulation of views to increase the sensitivity (and perhaps the reliability) of the data obtained. However, to date, there has been no research exploring academic outcomes, children's psychosocial functioning and sleep.

2.8. THE ROLE OF SLEEP IN CHILDREN'S PSYCHOSOCIAL FUNCTIONING

The Department for Education and the Department of Health (DfE & DoH, 2015) highlighted that social and emotional difficulty might present in children in different ways. For example, children may become 'withdrawn or isolated, as well as displaying challenging, disruptive or disturbing behaviour' (DfE & DoH, 2015; p.98). However, the terminology used to describe social and emotional difficulties has varied according to the initiatives of different governments (DfE & DoH, 2015; DfES, 2001). For example, terminology such as social, emotional, and mental health (SEMH), social, emotional, and behavioural difficulties (SEBD), and mental or psychological well-being have been used (DfE & DoH, 2015; DfES, 2001, Office for National Statistics, 2015).

Multiple definitions have been suggested in the literature to explore aspects of children's mental health, however, for clarity, I will refer to children's psychosocial (psychological and social) behaviour, which encapsulates an area of focus in the research succinctly, and complements the measures used. In the current thesis, psychosocial functioning refers to Friedli and the World Health Organisation's (2009) classification of health (as a state of mental, physical, and social well-being).

The effects of sleep have been found in emotion-linked systems and processes within the body, such as emotional regulation and emotional functioning (Vriend et al., 2013). Palmer and Alfano (2017) suggested that the interplay between sleep and nearly all affective disorders presents a complex, co-occurring, yet intimate relationship as the same brain regions and processes that are involved in sleep are also involved in emotion. Kidwell (2016) stated that these brain regions include the prefrontal cortex, involved in executive control behaviours such as reasoning, problem-solving, working memory, impulsivity and decision-making. Mindell, Kuhn, Lewin, Meltzer and Sadeh (2006) supported this, stating that sleep can regulate mood when one may be experiencing heightened levels of irritability.

In a study of 291 eight-year-old children, Lemola et al. (2011) explored the relationship between aspects of sleep and characteristics that promote psychological adjustment. Lemola et al. found that the more a child slept, the greater their optimism, self-esteem, and social competence, though this outcome was modest in effect size. In contrast, a negative association was found for children who had a short to average sleep-onset latency (recorded as 32 minutes) as they scored higher for levels of low self-esteem. Parents and teachers provided an assessment of children's sleep and psychosocial functioning; however, no data were obtained from the children directly. Children may report different factors related to their sleep behaviours, though Owens, Maxim, Nobile, McGuinn, and Msall (2000) stated children's parents may not be fully aware.

Kim et al. (2011) found that children with sleep-disordered breathing tended to experience frequent problems with their peers and social withdrawal. In

contrast, King, Baxter, Stuber, and Fish (1987) found that sleep deprivation had positive outcomes for a pre-pubertal 12-year-old boy with childhood depression. King et al. found that sleep deprivation had a therapeutic and immediate effect on the child's emotions. This research employed a single-case design, making generalisation difficult. However, additional studies on depressed adolescents and adults have similarly demonstrated an anti-depressant-type response as an outcome of sleep deprivation (Benedetti et al., 2007; Naylor et al., 1993; Wiraz-Justice & Van den Hoofdakker, 1999).

Drake et al. (2003) found that typical effects of sleep difficulties in children might present as daytime sleepiness and behavioural problems in the classroom. Dahl (1996) supported this and put forward that the coordination of behavioural responses is negatively affected by sleep loss, especially in demanding social situations. These situations may require executive functioning capacities, such as the ability to pay attention to, and to process multiple stimuli simultaneously and to be aware of possible outcomes of one's actions while responding accordingly. Such behaviours may provide barriers to a child's learning that an EP is invited to intervene on, yet the impact of covert sleep-related difficulties may be unidentified by parents and teachers.

The recommended time that it should take for children to fall asleep (sleep-onset delay) is approximately 20-minutes (Gaylor, Burnham, Goolin-Jones, and Anders, 2005). However, O'Brien (2009) stated that a strong drive to stay awake might be present in sleepy children. This avoidance of sleep may exacerbate sleep-related executive functioning difficulties, such as hyperactivity, inattention, emotional difficulties, and poor concentration and impulse control. Holley, Hill, and Stevenson (2011) suggested that absolute sleep duration predicts conduct problems in children, with even one hour less of average sleep increasing susceptibility to conduct difficulties. Behavioural difficulties that deviate from classroom rules and norms may instigate an over-identification of possible attention deficit-type difficulties or result in social penalties for some children. Such consequences may, therefore, have negative social consequences for tired children who demonstrate elevated activity levels.

Appleton (2000) highlighted that as tier-two mental health professionals EPs are in a strong position to identify, explore and target children's sleep loss. Given that primary school-aged children are especially dependent on other people to achieve the quality and quantity of sleep that they require, working with parents to support children's sleep is essential. Such practice is supported by clause 14.58 in the Standards of Proficiency (HCPC, 2015). The HCPC (2015) requires EPs to "be able to develop and apply effective interventions to promote psychological well-being, social, emotional and behavioural development and to raise educational standards" (p.24). Mindell et al. (2011) added that teachers, parents, and children could benefit from receiving information about the importance of sleep and its impact on education from professionals.

Several researchers have found that school-age children above the age of six can demonstrate an understanding of relative connections between their thoughts, and feelings and they are developing an awareness of metacognitive strategies (Flavell, Flavell, & Green, 2001; Davis, Levine, & Lench, 2010). Such children may, therefore, have arrived at a suitable developmental and cognitive level to engage in a school-based intervention. Newark (2013) posits that early intervention in children's sleep may help to reduce parent-child opposition at bedtimes and to educate children about their sleep. Intervention may result in an increase of positive sleep practices and a reduction in behavioural sleep difficulties. Crabtree et al. (2005) further recommend that all children receive sleep education that promotes the health benefits of sleep.

The reviewed research has shown an association between sleep loss and areas of psychosocial functioning. As far as I am aware, primary school-aged children's perceptions of their psychosocial functioning about their sleep are absent from the literature. Such information has largely been obtained through parent and teacher reports, or (quantitative) child-report, rather than from a culmination of respondents (Goodnight, Bates, Staples, and Dodge, 2007; Paavonen et al., 2000; Paavonen, Porkka-Heiskanen, and Lahikainen 2009). These findings could contribute a deeper understanding of the complex relationship between psychosocial functioning and sleep.

2.8.1. MEASURES OF PSYCHOSOCIAL FUNCTIONING

Assessing psychosocial difficulties in research is often completed using the Rutter Behavioural Scale (Rutter, 1967), the Child Behaviour Checklist (Achenbach & Rescorla, 2001), and the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1999). In testing for concurrent reliability, Biggs, Lushington, van den Heuvel, Martin and Kennedy (2011) and Goodman and Scott (1999), found that there were moderate to strong reliabilities between these scales. The Office for National Statistics (2015) lists the SDQ as a measure of children's well-being, and the Department for Education (DfE, 2016) recommends the SDQ as a screening tool for children's mental health. Though the DfE (2016) did not identify sleep as a risk factor in child and adolescent mental health, the SDQ provides a beneficial, validated and freely accessible assessment tool.

Despite EPs being identified by the Department for Education (DfE, 2016) as being able to support children's mental health, there is little current evidence in the literature of EPs doing so with an explicit focus upon children's sleep. In contrast, EPs have created a more robust evidence-base through sleep-related research with children with special educational needs and disabilities (SEND) and infants or adolescents (Everhart, 2011; Rydzkowski, Canale & Reynolds, 2016).

2.9. HOW IS SLEEP ASSESSED AND MEASURED IN CHILDREN?

There are a variety of methods that have been used in the literature to assess sleep difficulties in children. This section provides an overview of these methods by exploring objective and subjective approaches to assessment.

2.9.1. OBJECTIVE SLEEP MEASURES

Objective measures in sleep research include actigraphy (activity/movement monitoring of sleep using a small wristwatch-like device), which enables individuals to have their physiological behaviour measured in the natural environment. In contrast, polysomnography (PSG; where oxygen levels, brain, heart, and skeletal muscles are monitored to enable accurate matching of physiological behaviour to the sleep stages) takes place in a hospital or clinic setting. Buckhalt et al. (2009) stated that PSG can monitor children's sleep behaviours. However, as children need to adapt to the clinical environment, PSG may affect the natural sleep patterns and physiological responses of children (Astill et al., 2012). A child may also be filmed (videosomesnography) and observed in their natural environment, enabling sleep periods to be monitored and reported digitally.

PSG and actigraphy can provide accurate and objective data on the physiological factors and behaviours that take place during sleep while measuring sleep/wake periods and continuity of sleep. Alternatively, videosomesnography can provide an objective assessment of sleep and related factors (Sadeh, 2015). Despite being considered the best way of collecting data for sleep research, PSG is costly, and actigraphy may lack the richness of data from the human experience. PSG informs the researcher about the achieved-level of sleep, but it fails to provide information about how much sleep is refreshing or required by the individual. Further, children may refuse to wear, destroy or lose actigraphy watches; a consideration researchers may wish to keep in mind (Hiscock et al., 2015).

2.9.2. SUBJECTIVE SLEEP MEASURES

Subjective measures include the completion of sleep diaries, which record sleep hygiene over a set period. Blunden, Benveniste, and Thompson (2016) described sleep hygiene as a helpful sleep-promoting behaviour. Sleep diaries enable professionals supporting families to analyse the data presented. Sadeh (2015) put forward that sleep diary data is informed by subjective content which

relies on parental awareness and perceptions, which Sadeh (1996) suggested is limited.

Buckhalt et al. (2009) put forward that interviews and surveys can facilitate subjective self-reporting and are used effectively in research. Measures include, the Children's Sleep Habits Questionnaire (CSHQ; Owens, Spirito, & McGuinn, 2000); The BEARS sleep screening tool (Owens & Dalzell, 2005); the Teacher Daytime Sleepiness Questionnaire (TDSQ; Shahid, Wilkinson, Marcu & Shapiro, 2011); and the School Sleep Habits Survey (SHS; Wolfson & Carskadon, 1998).

Monsen, Graham, Frederickson, and Cameron (1998) described subjective methods of information gathering as providing a rich data source, which could help to clarify the problem situation presented to the EP. Subjective methods could, therefore, enable a comprehensive approach to intervention development. By identifying where the associated sleep difficulties for children lie, EPs can design, produce, and deliver sleep interventions that may be an effective early intervention strategy.

Quach, Hiscock, Ukoumunne, and Wake (2011) championed the use of parent-report measures stating that they are not only cost-effective, but they provide an insight into parental concerns for their child's sleep. Brown, Swedlove, Berry, and Turlapati (2012) suggested that professionals may rely heavily on parent-report to determine the presence of a sleep problem (Brown, et al., 2012), though this highlights two potential problems. Parents may not always be aware of their child's difficulties with sleep, and they may not seek professional support when there is a sleep concern. A lack of action may result in a reactive, rather than proactive response to meeting children's needs. EPs can support their service users through the delivery of training and greater dissemination of information.

Some researchers have found parental reports of children's sleep to be a reliable and valid method of understanding children's sleep patterns and sleep difficulties (Meltzer et al., 2013; Singh & Kenney, 2013; Stein et al., 2001).

Conversely, Holley et al. (2011) argued that as parents may be unable to observe their child's sleep and night wakings directly, parental reports may be less reliable than objective measures. Meltzer et al. (2013) reported that the Sleep Self Report (SSR; Owens, Maxim, Nobile, McGuinn, & Msall, 2000) is one of few validated measures for children that enable an understanding of children views about particular sleep-related domains.

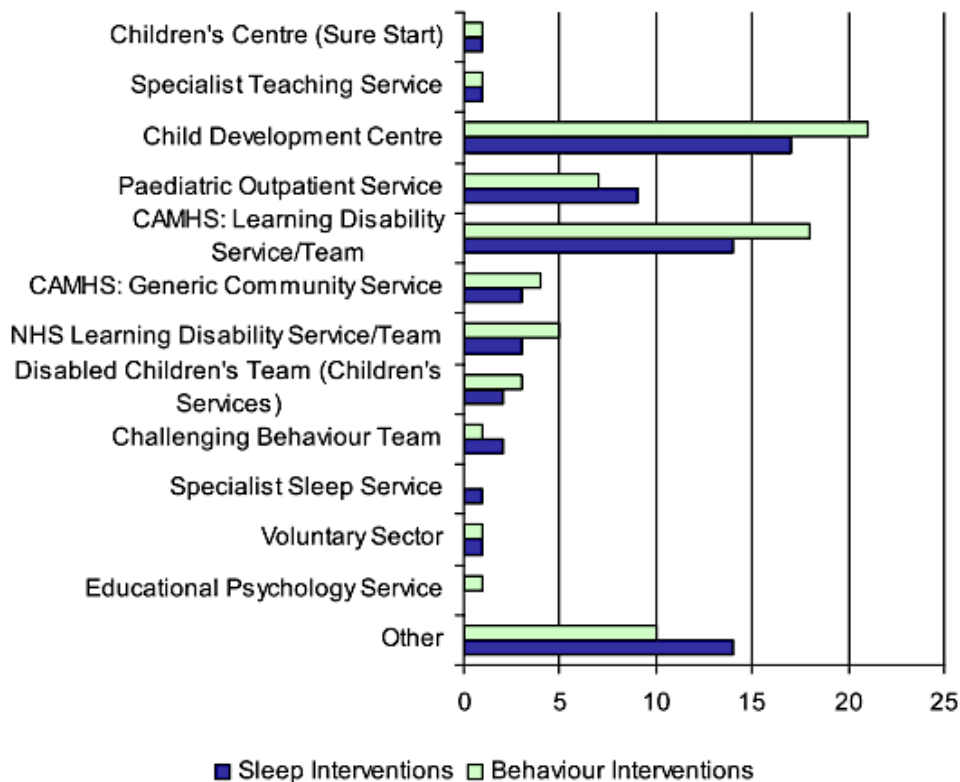
Questionnaires are a subjective measure, though Kushida et al. (2001) found no significant differences between subjective reporting, actigraphic recordings and PSG data for sleep duration or efficiency. Goodnight et al. (2007) state that regardless of the source of information (parent- or teacher-report or actigraphy), sleep difficulties continue to demonstrate a relationship with externalising behaviours in childhood.

2.10. WHERE ARE EDUCATIONAL PSYCHOLOGISTS IN PROMOTING CHILDREN'S SLEEP?

Educational psychologists are currently underrepresented as professionals involved in primary school-aged children's sleep (Beresford et al., 2012). However, EPs know about child development and the ability to design and deliver effective interventions to help children to overcome barriers to their learning (HCPC, 2015). This section provides a brief overview of the literature that highlights the absence of EPs in an area that underpins many aspects of children's wider outcomes.

A significant part of the EP role is to promote academic outcomes and psychosocial functioning in children from birth to 25 (BPS, 2002; DfE & DoH, 2015; HCPC, 2015). In a study in the United Kingdom (UK), Beresford, et al. (2012) found that out of 121 various professional services that worked with children, only 11% focused on delivering sleep interventions to all children (including those without a diagnosis). However, sleep interventions were common for 34% of children with a diagnosis, learning disability, or a diagnosis of autism. Children with learning disabilities only, those with autism only, or children with disabilities only received the remaining 55% of interventions.

While some educational psychology services (EPSs) were involved in delivering behaviour interventions, Beresford et al. (2012) found that no EPs within these services were reported to be involved in delivering sleep interventions (*Figure 1*).



(Beresford, Stuttard, Clarke, Maddison & Beecham, 2012)

Figure 1. Services that deliver sleep and behavioural interventions.

I conducted an electronic internet search focused on UK educational psychology services (Google, 2017). After reviewing the first 10 pages, just five EPS' mentioned sleep support. Support was offered via EP recommendations to help teenagers to overcome sleep difficulties; parent workshops to support the sleep of children aged up to five; as a positive outcome of a mindfulness intervention offered, or mentioned as a skill that an individual EP has (by supporting parents to achieve a good night's sleep).

Another EPS offered group interventions for parents through sleep and bedtime routines as an early intervention strategy; however, there was no mention of the target age group. Through the same search parameters, only one private and specialist sleep support company emerged that was operated by one senior EP, with EP and clinical psychologist employees. Therefore, I wonder if EPs may be more frequently honing in on practice-based evidence than on evidence-based practice (Fox, 2015). To help to develop evidence-based practice, I wish to explore parent, teacher, and children's perceptions of children's sleep and to explore ways of improving children's sleep knowledge and sleep-related behaviour.

2.11. INTERVENTIONS FOR CHILDREN

Educational psychologists are among the most qualified professionals working with children in the local authority (Corban, 2011). They have undertaken rigorous training to apply the evidence-base to practical strategies and recommendations. This section draws upon the potential for EPs to deliver sleep interventions to promote positive outcomes.

SLEEP INTERVENTIONS

Galland and Mitchell (2010) recommend that practitioners deliver sleep interventions through a parent-education model, which supports parents to familiarise themselves with evidence-based strategies to ensure their success. By combining the evidence-base from psychology and of sleep-related information within an educational format, psycho-educational interventions may represent an appropriate way to disseminate both preventative and restorative information to parents. However, school-based sleep interventions have produced beneficial outcomes for children and teenagers.

After reviewing 13 studies on school-based sleep education programmes for adolescents, Blunden and Rigney (2015) identified two overarching categories

to describe them; including those that sought to improve sleep behaviour and those with an objective of improving sleep knowledge. The interventions continued for between four to 12 sessions, lasting from 50 minutes to two hours. The average age of students ranged from 13 to 19 with the length of post-intervention follow-up ranging from one to three months. Blunden and Rigney suggested that although sleep-education is a developing area of research, the strongest studies included several common factors. Successful studies obtained views from teachers, parents, children, and their peers, they delivered the information through a range of methods (not just visually), and they evaluated the value of the programme.

Sousa, Souza, Louzada, and Azevedo (2013) delivered an educational sleep programme to pupils aged 16 and 17 (n=34). Sousa et al. aimed to measure the change in adolescent sleep behaviour and sleep knowledge through the delivery of five 50-minute sessions. At the three-week post-intervention follow-up, there was a 63% percent increase in sleep knowledge, pupils slept for 26-minutes longer and went to bed earlier than before the intervention started. However, the study had a small sample size, which Sousa et al. reported was related to the number of data collection points, stages, and nature of the participation. Previous studies have not observed a change in both sleep knowledge and behaviour as an intervention outcome, and I wonder if this is possible for school-aged children.

The efficacy of cognitive-behavioural interventions was reported by Sadeh (2005) to improve children's sleep difficulties quickly. With positive outcomes observed for children and families' post-intervention, this provides a rationale for the delivery of time-bound interventions. Likewise, behavioural approaches of supporting parents of children with sleep difficulties, and psychosocial difficulties is well established as an effective and reliable method (Horner, Dunlap, Hieneman, & Lewis, 2000; Mindell et al., 2006). These methods include approaches that EPs may utilise or be aware of in their practice, such as principles of learning theory, stimulus control, reinforcement, consequence and social learning to bring about a positive change in habitual behaviours (Bandura and Walters, 1977; Owens, France, & Wiggs, 1999).

Many studies into the outcomes of behavioural programmes for children have focused on children with a diagnosis of ADHD (Hiscock et al., 2015; Jones, Daley, Hutchings, Bywater, & Eames, 2008) or children with disabilities (Beresford et al., 2012). They have targeted behavioural difficulties in children as with The Incredible Years parenting programme (Webster-Stratton, 2014) or sleep difficulties with preschool-aged children (Halal & Nunes, 2014). These programmes have shown efficacy in their outcomes and have applied evidenced-based and behavioural strategies in their interventions. However, they have not addressed a role for the EP to design interventions that could explicitly support primary school-aged children's sleep-related knowledge and behaviour.

One limitation that several studies into children's sleep have is that they heavily rely upon single-case designs rather than randomised controlled-trials to produce ecologically valid findings. However, Mindell et al. (2006) argued that such designs are common in applied behavioural research as they can hone in on minute factors that influence the variables within a study, thus strengthening the internal validity of the research. Cassoff et al. (2013) suggested that although sleep knowledge has typically improved after the delivery of a sleep education intervention, it is unclear whether there is also an improvement in sleep behaviours.

EPs are well placed to be able to support the identification of potential symptoms of poor sleep in children and to understand the impact that it has on children in the home, school, and community. The role of the EP to explore sleep difficulties and to promote evidence-based psychological interventions to help children and families to overcome the barriers that they present may prove to be a beneficial service for children, their parents, and their teachers.

2.12. GAPS IDENTIFIED BY THE LITERATURE REVIEW

The literature review has illustrated that there remains a gap in primary school-aged children's sleep research, which present an opportunity for further research. The identified gaps in the literature focus on:

- Exploring primary school-aged children's views about their sleep-related behaviours.
- Exploring parent, teacher and school-aged children's views about children's sleep, academic outcomes, and psychosocial functioning.
- Understanding the impact that EPs can have through the design and efficacy of a brief, time-bound intervention on children's sleep-related knowledge and behaviours.

2.13. AIMS FOR BOTH PHASES OF THE RESEARCH

As a trainee educational psychologist, I aim to contribute to the knowledge base through a two-phase research project that explores the value that an EP can bring to intervene on children's sleep-related difficulties. To do this, I aim to strengthen the link within the field of educational psychology and research into children's sleep. I intend to explore parent, child and teacher views about children's sleep behaviours, psychosocial functioning, and academic outcomes. This focus will contribute to the knowledge base as I aim to develop and evaluate the efficacy of a brief, time-bound school-based intervention on children's sleep-related knowledge and sleep behaviours.

CHAPTER 3. METHODOLOGY

3.1. INTRODUCTION

Findings from the previous chapter indicated that there is relatively little research in educational psychology about sleep-related factors regarding primary school-aged children who do not have a psychiatric or medicated condition. This chapter presents the methodological framework of both phases of the study (*Figure 2*). The philosophical assumptions for the current study are discussed and justified. For each phase, I explore the methodological approach, before discussing the design, research questions, participants, measures, procedure, data analysis and issues relating to research quality. I attend to the ethical considerations of the research before providing a summary.

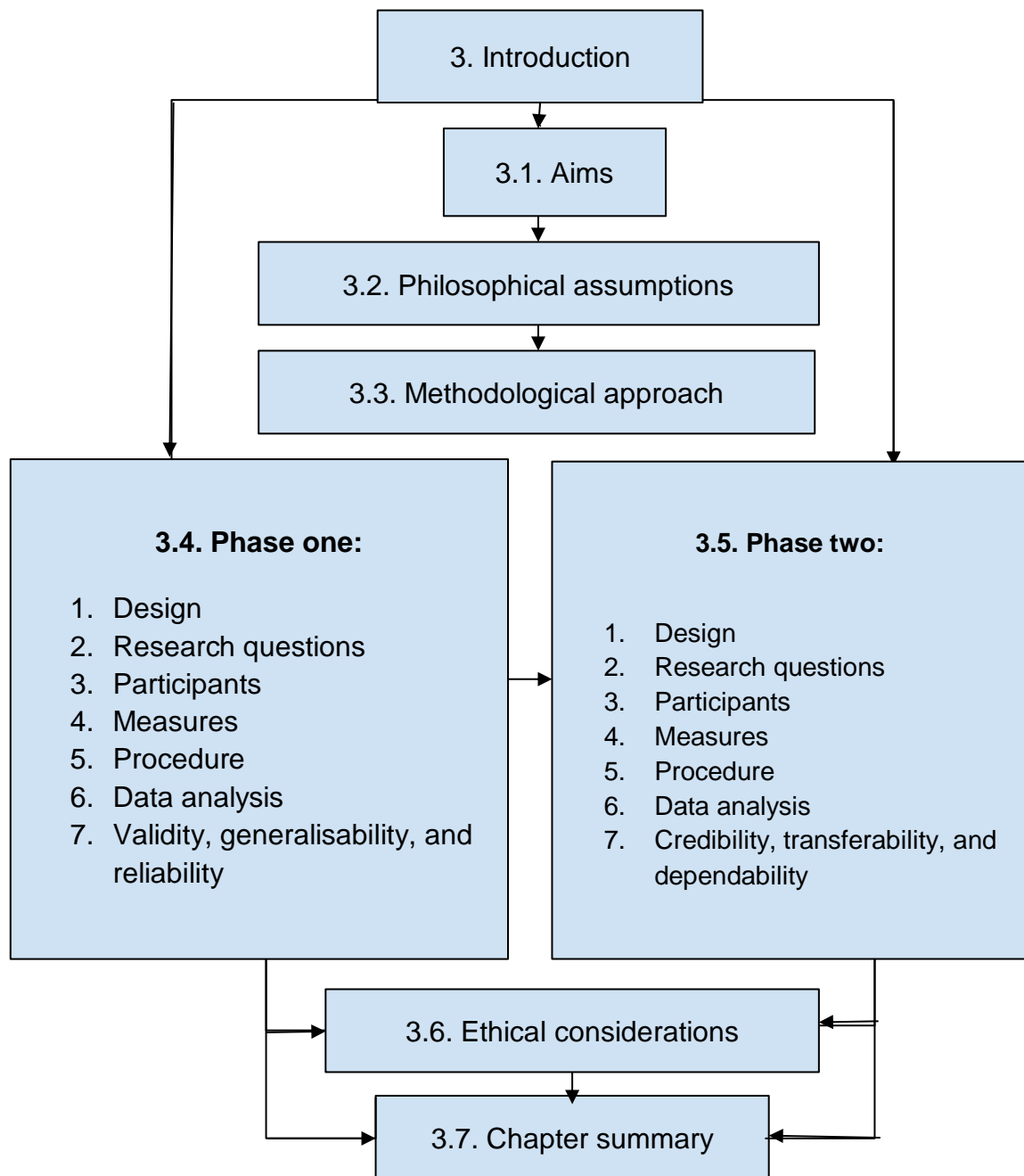


Figure 2. A schematic diagram of the methodology chapter.

3.2. PHILOSOPHICAL ASSUMPTIONS

When focusing on the nature, perception, and methods of exploring reality, Guba and Lincoln (1994) suggested that there are three relevant areas to consider that can “guide the investigator” (p.105). These areas include the ontological and epistemological views (which together form the research paradigm or worldview), and the methodology. Ontology relates to the nature of reality and *what is*, whereas epistemology refers to the theory of knowledge and how reality is known. Finally, the methodology relates to the approaches used to identify knowledge.

PRAGMATISM

Traditionally in the literature, research has been associated with one of two philosophies that categorise positivist and interpretivist research (Guba & Lincoln, 2005). However, such examples tend to align themselves with purely quantitative or qualitative approaches. In contrast, some leading authors, for example, Tashakkori & Teddlie, (1998) suggested that pragmatism combines qualitative and quantitative paradigms. Pragmatism emerges as a flexible approach that considers both objective and subjective perspectives that align with the researcher’s values and motivations. Others such as Nelson and Evans (2014) suggested that mixed method approaches are grounded in pragmatism, which is seen as a paradigm that lends itself to evaluations and the impact of research. Such a focus enables the researcher to focus on interventions that affect social change rather than on stances of reality and knowledge commonly found in positivist and constructivist research (Mertens, 2015; Nelson & Evans, 2014). However, this is one use of the term pragmatism.

The more philosophical version of the term pragmatism is presented by Powell (2001, p.884) who suggested that the role of the pragmatist researcher “is not to find truth or reality, the existence of which are perpetually in dispute”, instead, it is important to facilitate human problem solving. Therefore, in relation to children’s sleep difficulties, the current stance is not to discover which participants’ perception about sleep difficulties is factual.

The pragmatic approach in both senses – combined methodologies and problem-solving philosophy - guided the current research, by eliciting the views of teachers, parents, and children about factors relating to children’s sleep. The intervention in phase two supports this approach by providing parents and children with sleep-promoting strategies and school staff with a school-based intervention that may be useful or have benefits within their individual contexts. Pragmatism aligns with my worldview of working with service users to understand their perspectives and to effect social change through intervention and evaluation. Collecting data using a range of strategies and methods provides the opportunity to gain a richer analysis into the area of children’s sleep than would be provided by mono-method approaches alone.

3.3. METHODOLOGICAL APPROACH

A mixed method approach enabled me to generate information about the personal experiences and perspectives of the participants involved. Mixed methods underpinned my ability to explore various types of research questions using a variety of approaches without being constrained by rigid ontological and epistemological assumptions (Creswell, 2007; Tashakkori & Teddlie, 2003). Though Robson (1993) suggests that mixed method research may produce contradictory results that could be confusing and lead to uncertainty, I was not working from a positivist paradigm with the notion of one single and concrete truth. Instead, conflicting results obtained from both methods could yield essential differences that contribute to the knowledge base.

Creswell (2007) suggests that when designing research that mixes quantitative and qualitative approaches (mixed methods), it is important to consider four factors. These factors include timing (sequential or concurrent data collection), weighting (priority of quantitative/qualitative approach), mixing (how qualitative and quantitative data are combined), and theorising (taking account of the researcher’s biases), which help to shape the research (Table 1).

Table 1

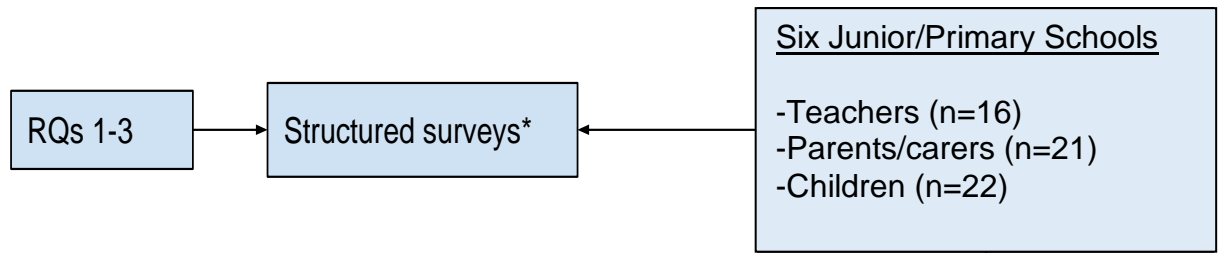
Considerations for mixed methods research

Timing	Weighting	Mixing	Theorising
No sequence: Concurrent	Equal	Integrating	Explicit
Sequential: Qualitative first	Qualitative	Connecting	
Sequential: Quantitative first	Quantitative	Embedding	Implicit

(Creswell, 2007)

In the current study, greater attention was paid to the quantitative data, and the qualitative data provided the opportunity to enhance or challenge the findings. *Figure 3* illustrates the research design and the measures used in each phase of the research. In this study, I embedded (mixed) the data “between data analysis of the first phase of research and the data collection of the second phase” (Creswell, 2007, p.208). The study, therefore, follows a two-phase sequential mixed-methods design culminating in one complete piece of research (Creswell, 2015).

Phase One: Sleep, academic and psycho-social outcomes



Phase Two: Sleep Club intervention and evaluation

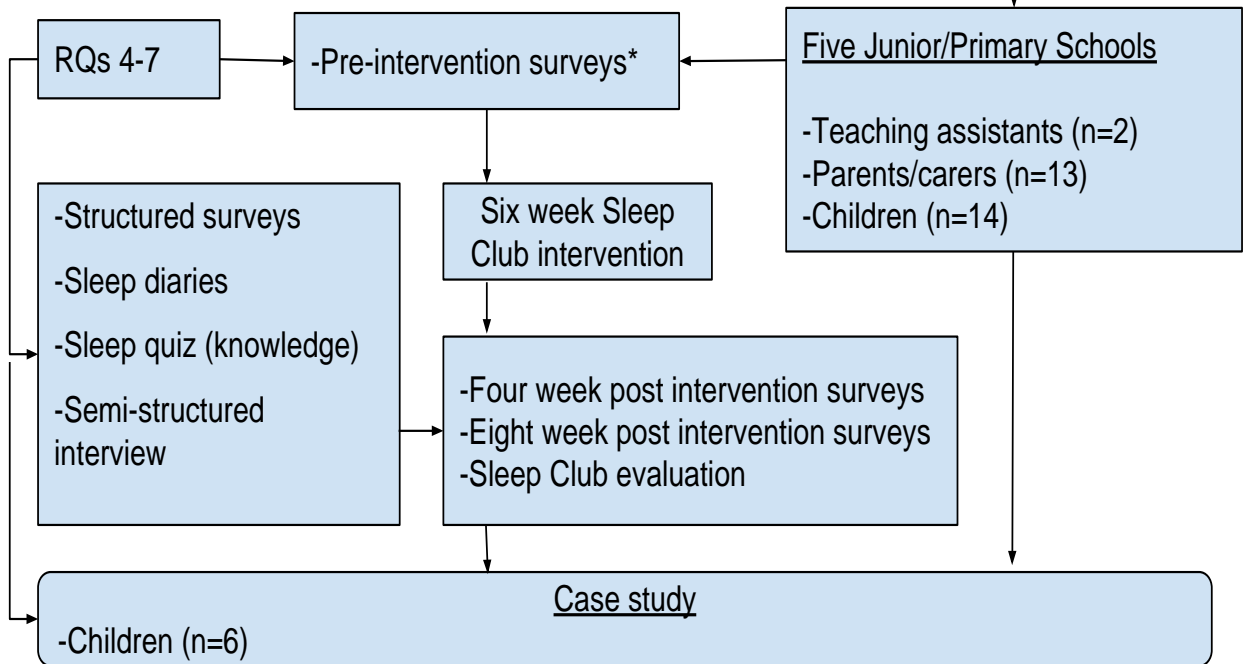


Figure 3. A schematic diagram of the research design.

3.4. PHASE ONE: SLEEP DIFFICULTIES IN PRIMARY SCHOOL-AGED CHILDREN: PARENT, TEACHER AND CHILD PERSPECTIVES

This section describes the design of phase one of the research. I present the research questions and discuss the participants, measures and procedures. I describe the data analysis methods and discuss how I have established validity and reliability.

3.4.1. DESIGN

Phase one had a small-scale correlational design to explore factors related to primary school-aged children's sleep. This phase focused on parents', teachers', and children's views to understand the nature of any interactions between children's sleep and their psychosocial and academic outcomes. The research questions underpinning this study are presented below:

3.4.2. RESEARCH QUESTIONS (RQ)

1. To what extent do primary school-aged child participants experience difficulties with their sleep according to parents, teachers and children?
2. To what extent do parents, teachers and children report daytime sleepiness in specific school-aged children?
3. What are the relationships between specific children's sleep, their psychosocial functioning, and their academic outcomes?

3.4.3. SAMPLING AND PARTICIPANTS

A self-selected sampling method was used to obtain participants from participating schools within the anonymised local authority (LA). This method enabled me to reach a number of participants, with school staff supporting the process by sharing research information with potential participants. Ziliak and McCloskey (2008) challenge the use of opportunistic sampling due to the threat of self-selection bias (for example, participants taking part in the research due to interest or concerns related to children's sleep). However, this method supported my research, as it was important to utilise participant motivations to enable me to explore their views and perspectives, much like a self-referral programme. In line with the research paradigm, I did not intend to use controls and randomisation of participants for comparison of the intervention. Instead, as has been mentioned, the focus was on experience, meaning and change.

Participants from the responding six Junior and Primary schools were required to be:

- **Children:** Six to 11 years of age who could understand and communicate in English.
- **Parents:** Parents of the above children who could read, write, and speak English.
- **Teachers:** Primary or Junior school teachers.

Based on these criteria, 59 participants were involved in phase one: (teachers, n= 16; parents/carers, n= 21; children, n= 22). The children included 15 boys and seven girls who were aged six to 11 years of age (Mdn= 8). Accessibility of consent forms was limited in some parents, and school staff reported that parents might not have understood the information due to the relatively high levels of families with English as an additional language (EAL) in the population.

3.4.4. MEASURES

Appendix 3 (p.236) includes a copy of the child measures, Appendix 4 (p.239) details teachers' measures and Appendix 5 (p.247) includes a copy of the parent measures.

MEASURES OF SLEEP-RELATED INFORMATION

Phase one was designed to provide an initial overview of information to identify whether or not sleep difficulties and daytime sleepiness was a problem for school-aged children. The use of a survey was the most time and cost-effective way of obtaining initial views on the topic, at the same time as avoiding interviewer bias. Surveys enabled me to reach a greater number of people as school staff helped to disseminate the surveys to consenting participants. Although structured surveys do not provide a great depth of information, I addressed this issue by using semi-structured surveys, interviews (consultation), and case studies in the second phase of the research.

TEACHERS: THE TEACHER DAYTIME SLEEPINESS QUESTIONNAIRE (TDSQ)

The Teacher Daytime Sleepiness Questionnaire (TDSQ; Shahid, Wilkinson, Marcu, & Shapiro, 2011) is a 10-item scale previously used in research. The TDSQ assesses several behavioural issues that may manifest as a result of disturbed sleep in children. The TDSQ is a one-week retrospective questionnaire of daytime sleep-related behaviours likely to be observed by teachers in the school context. Factor analysis on the TDSQ items was reported with an alpha coefficient of 0.80 and rated as approaching well-established status according to the American Psychological Association (APA) Division 54 Evidence-Based Assessment (EBA) Task Force criteria (Cohen et al., 2006; Lewandowski, Toliver-Sokol, & Palermo, 2011). Items are rated on a three-point scale ranging from 'usually' (3), 'sometimes' (2) or 'never/rarely' (1). Participants

can achieve a minimum and maximum score of 10 and 30, and a higher score indicates greater daytime sleepiness.

PARENTS: THE CHILDREN'S SLEEP HABITS QUESTIONNAIRE (CSHQ)

The Children's Sleep Habits Questionnaire (Owens, Spirito, & McGuinn, 2000) is a 33-item one-week retrospective parent-report designed to screen sleep difficulties in children. Thirty-one items range from "usually", "sometimes", to "rarely", with two items scored on a scale of zero, one and two. The CSHQ contains eight subscales, bedtime resistance, sleep-onset delay, sleep duration, sleep anxiety, night wakings, sleep-disordered breathing and daytime sleepiness. A higher CSHQ score indicates greater sleep difficulties.

Owens, Spirito, and McGuinn, 2000) reported factor analysis on the CSHQ items, with an alpha coefficient of .68 in a community population and .78 in a clinical population. The CSHQ is a validated and reliable survey (test-re-test range 0.62 – 0.79). It is a well-established measure according to the American Psychological Association (APA) Division 54 Evidence-Based Assessment (EBA) Task Force criteria (Cohen et al., 2006; Lewandowski et al., 2011). The CSHQ can identify sleep habits and sleep-related difficulties in school-aged children that are related to the International Classification of Sleep Disorders' (ICSD) classifications of sleep disorders (Owens, Spirito, & McGuinn, 2000).

CHILDREN: THE SLEEP SELF-REPORT (SSR)

The Sleep Self-Report (Owens, Maxim, Nobile, McGuinn, & Msall, 2000) is a 26-item one-week retrospective questionnaire. The SSR is a measure for children aged seven to 12, and it has been used in research with children as young as six (Becker, 2014; Ward et al., 2008). Children rate the items on a three-point scale, which ranges from "usually" (3: five to seven times per week), "sometimes" (2: two to four times per week) to "rarely" (1: zero to one time per

week). The initial three items on the scale provide descriptive data that does not contribute to the total SSR scores.

The SSR also yields three subscale scores; bedtime behaviour (12 items), sleep behaviour (seven items), and daytime sleepiness (four items). The SSR is correlated with measures on the CSHQ and is approaching well-established status according to the American Psychological Association (APA) Division 54 Evidence-Based Assessment (EBA) Task Force criteria (Cohen et al., 2006; Lewandowski, Toliver-Sokol, & Palermo, 2011). Owens, Maxim, Nobile, McGuinn, and Msall (2000) reported a factor analysis on SSR items with an alpha coefficient of .88.

MEASURES OF PSYCHOSOCIAL FUNCTIONING

PARENTS AND TEACHERS: THE STRENGTHS AND DIFFICULTIES QUESTIONNAIRE (SDQ)

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997, 2001) is a brief behavioural screening questionnaire about school-aged children. Tsang, Wong, and Lo (2012) used the 25-item SDQ as a measure of psychosocial outcomes. The SDQ has five subscales (conduct problems, hyperactivity/inattention, emotional symptoms, peer problems and pro-social behaviour). Adding up all responses to the subscales excluding the pro-social items creates the total difficulties score.

The conduct and hyperactivity symptoms subscale scores are combined to create the externalising score. The emotional and peer problems subscale scores are combined to create the internalising score. Externalising difficulties refer to “temper tantrums, lying, stealing, defiance, disobedience, truanting, and destruction”, whereas, internalising difficulties refers to: “misery, worrying, fears, hypochondriasis, and obsessionality” (Goodman & Scott, 1999; p.19).

The SDQ subscales relate to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV; American Psychiatric Association, 1994) and the International Classification of Diseases (ICD-10; World Health Organisation, 1993). Goodman (2001) reported a good level of internal consistency for the five subscales with a mean Cronbach alpha of 0.73. The SDQ has a good level of sensitivity that can discriminate between clinical participants and community controls (Goodman, Meltzer, & Bailey, 1998). The measure has shown moderate test-retest reliability (Yao et al., 2009).

CHILDREN: THE POSITIVE AND NEGATIVE FEELINGS QUESTIONNAIRE

The Positive and Negative Feelings questionnaire is a children's well-being scale previously used in research by the New Economics Foundation (NEF) and Action for Children (Nef and Action for Children, 2009). Children rate 10 items on a five-point scale (1-never, 2 – on one day, 3 – on a few days, 4- on most days, 5 – every day). Items B, E, F and G are reverse scored. All items are summed together, and higher scores indicate better psychological well-being.

MEASURES OF ACADEMIC OUTCOMES

TEACHERS

I designed a basic questionnaire for teachers to identify each child's current academic level of attainment and progress made. Different schools use different attainment descriptors to assess academic progress. Therefore, teachers were asked to rate the child's level of attainment in Maths, and English (reading and writing) according to the school-defined descriptors (e.g. below or working towards). Scores were summed to create a total attainment score.

Teachers were also asked to rate how much progress the child had made in English (reading and writing) and Maths (since the previous September) according to a five-point scale (1- none, 2 – little, 3-moderate, 4-average, 5- above average). Due to difficulties with the direct comparison of different descriptors, I selected a range of descriptors at each level of progress according to the categories found in the literature (Lilly, Peacock, Shoveller, & Struthers, 2014; Standards and Testing Agency, 2016, 2017). As above, the summation of the assessed areas provided the total progress score.

CHILDREN

Children assessed their academic progress for English (reading and writing) and Maths. I designed a basic questionnaire to assess these areas on a 5-point rating scale (5-great, 4-good, 3-ok, 2-not ok, 1-not well) with corresponding facial icons. Maldonado, Bentley, and Mitchell (2004) used cartoon faces as rating scales in research, and I felt this was a clear, and efficient way of obtaining children's views. Higher scores on this scale indicate greater academic progress.

SCALE THRESHOLDS FOR CATEGORISATION

In the analysis of the CSHQ, a cut-off score of 41 provided by the authors of the scale indicates the presence of a sleep difficulty. This threshold is reported to have adequate levels of sensitivity (.80) and specificity (.72) for distinguishing between children with and without a clinically-related sleep difficulty (Owens, Spirito, & McGuinn, 2000). For the CSHQ subscales, I have used the normative data from the control group as described by the authors (Owens, Spirito, & McGuinn, 2000). The control group consisted of a suburban community sample of 469 English-speaking children aged four to 10 years.

To my knowledge, no normed data exists for the SSR or the TDSQ (Furnham & Jones, 2009; Shahid et al., 2011). However, the authors of these measures

reported that higher scores indicate greater sleep difficulty (Owens, Maxim, Nobile, McGuinn, & Msall, 2000; Shahid et al., 2011). To identify children with greater sleep difficulties, I have used the midpoint values of the scale range as a threshold to create descriptive categories. The term probable sleep difficulties is modelled on the language used by Espie et al. (2004). Therefore, scores higher than the scale midpoint refer to probable sleep difficulties, whereas scores lower than the midpoint refer to children scoring below the threshold of a sleep difficulty. Gershon et al. (2018) suggested that using questionnaire midpoints, rather than the means of participant scores avoids the over-identification of difficulties in research samples.

With the teacher and parent SDQs, the original three-band categorisation (normal, borderline, and abnormal) were used to identify and categorise the presence of difficulties for the subscales and the total difficulty score (Goodman, 1997, 2001). I felt that this provided a more concise categorisation than the more recent four-band categorisation method.

I used the midpoint values of the Children's Positive and Negative Feelings scale and the assessment of academic assessments from teachers and children. Scores above the midpoint score for these measures indicated greater psychosocial functioning and academic progress and attainment.

A summary of the methods and measures used and the corresponding research questions that they address in phase one are presented below in Table 2.

Table 2

Phase one research questions, methods and measures

Research Questions (RQs)	Method	Measures
One: To what extent do primary school-aged child participants experience difficulties with their sleep according to parents, teachers and children?	Quantitative	Surveys CSHQ, SSR, TDSQ
Two: To what extent do parents, teachers and children report daytime sleepiness in specific school-aged children?		Surveys TDSQ CSHQ and SSR subscales
Three: What are the relationships between specific children's sleep, their psychosocial functioning, and their academic outcomes?		Surveys CSHQ, SSR, TDSQ Positive and Negative Feelings Questionnaire, SDQs, and academic outcome surveys

3.4.5 PROCEDURE

I sent a copy of the information sheets to all EPs in my LA team, and they were asked to disseminate the information to the special educational needs co-ordinator (SENCO) in their allocated schools. A senior EP in the LA drafted an advert for the periodic headteacher newsletter, which was sent to all 43 Junior and Primary schools in the LA, inviting school staff to take part. Using established methods of communication with school staff helped to provide the research with professional status and esteem and therefore to promote interest (Gillham, 2007).

Eleven school staff were contacted after discussions with their allocated EP, and two SENCOs contacted me in relation to the headteacher's newsletter. One SENCO in one of the larger Primary schools did not feel that any children in the

school experienced sleep difficulties. Once headteachers had provided consent to take part in the research, the school research link (typically the school SENCO) was sent a copy of the information sheet, consent form and the first teacher survey to disseminate to their staff. The information sheet and consent forms for school staff is in Appendix 6 (p.255).

I sent a combined total of 430 parent information sheets and consent form packs to the school SENCOs involved. The packs were for class teachers to provide to parents to invite them to take part in the research (Appendix 7, p.266). I provided parent and teacher surveys to the SENCO to maximise the return of the surveys, and I reminded SENCOs to collect the surveys from the participating teachers. SENCOs provided class teachers with the survey for parents to complete once parents had provided consent. Teachers were later provided with the second teacher questionnaire to help to stagger their time in completing the questionnaires. Teachers would then remind parents to return the completed surveys.

I checked in with the SENCO approximately every 10 days to monitor recruitment, and at a mutually convenient time, I went into each school to obtain assent from children (with parental consent) and to go through the information sheet and survey with them (Appendix 8, p.278).

3.4.6. DATA ANALYSIS

Quantitative data from the surveys were analysed using IBM SPSS Statistics software version 24.0. Descriptive statistics, frequencies and percentages were calculated to provide a summary of results. Correlation analyses were conducted to explore relationships between parent, student, and teacher perceptions of children's sleep-related difficulties. I used an alpha level of .05 for all analyses.

NORMALITY CHECKS

This section reports the analyses used to explore the distribution and normality of all data to check for outliers and deviations from normality. Tabachnick and Fidell (2001) stated that appraisal of the normal distribution of variables are conducted by using graphical methods such as histograms, QQ-plots, or significance tests such as the Shapiro-Wilk test and using numerical methods such as skewness and kurtosis (z-scores). Kim (2013) illustrated that non-normal sample sizes are identified with skewness or kurtosis larger than 1.96 (with an alpha level of .05) for small sample sizes of less than 50 participants.

Appendix 9 (p.284), presents the skewness and kurtosis figures, and a sample of the histograms from the screening of the data is presented in *Figure 4* and *Figure 5* below. Due to the small sample size, I did not perform bootstrapping to reduce deviations from normality, as Guan, Yusoff, Zainal, and Yun (2012) stated that this results in an under-representation of variability in small samples. *Figure 4* demonstrates positively skewed and leptokurtic (peaked) data, and *Figure 5* showed negatively skewed and leptokurtic (peaked) data showing that the distributions are not normal. These findings indicate that the assumptions of the parametric test were violated and I used non-parametric tests for my analyses.

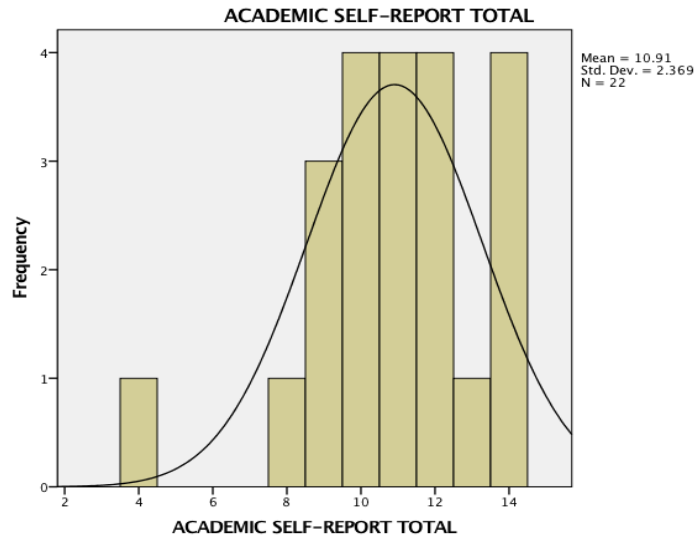


Figure 4. A histogram of the academic self-report scores.

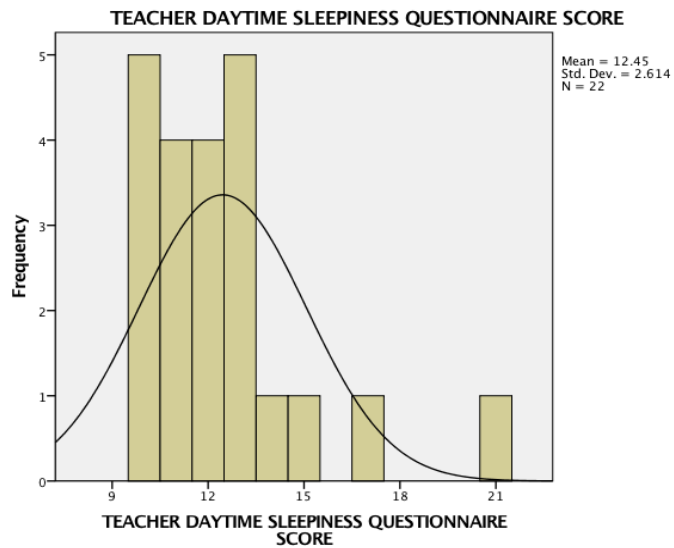


Figure 5. A histogram of the TDSQ scores.

3.4.7. VALIDITY, GENERALISABILITY AND RELIABILITY OF THE QUANTITATIVE ANALYSIS

VALIDITY

The surveys were selected to gain information on the views of teachers, parents, and children and to see how these views relate to children's sleep. As the surveys had been appraised in the literature, I felt confident to achieve a good degree of validity and construct validity; namely that the factors that I wanted to measure would be appropriately measured (Robson, 2002).

Robson (1993) recommends, "The first stage of any data gathering should if at all possible be a 'dummy run' –a pilot study" (p.301). Therefore, before starting the research, I completed a small pilot study by sending the questionnaires to six participants (two school teachers, two parents, and two children) that met the participant criteria. The pilot study enabled me to assess whether the surveys were user-friendly and that the established questions had face validity and therefore made sense. Feedback from teachers identified that changes were needed to clarify why there were two forms of measurement for academic attainment.

To enhance the credibility of the research, it was essential to obtain and triangulate the viewpoints received from parents, teachers, and children. Yeasmin and Rahman (2012) state that triangulation affords researchers the ability to cross-check different perspectives and to enable greater credibility. I felt that this was in line with the aims and philosophical underpinnings of the research.

To assess the validity of the academic measures used I conducted the Spearman's rho analysis with the measures of psychosocial functioning. I found a positive and significant relationship between teacher-rated academic progress and child-rated psychosocial functioning ($r_s(22) = .436, p=.042$), but not with any of the SDQ measures for parents or teachers ($p>.05$). Teacher-rated

academic attainment and child-rated academic progress were not significantly associated with any of the SDQ measures for parents or teachers ($p > .05$).

GENERALISABILITY AND RELIABILITY

I did not assume external validity (where the findings can be generalised to other settings or groups of people) due to the small sample size. The research findings apply to the participants who took part in the research and may inform a basis for future research to replicate the findings with a larger sample. Robson (1993) identified that it may be difficult to assess the generalisability of a study without repeating the procedures and replicating the findings. However, given the scope of this research and the time constraints involved in participant recruitment and thesis completion, it was not possible to conduct an experimental study with matched controls or to repeat the study. Given the detail presented in this chapter, researchers can use the procedures and methods described to replicate the study (Searle, 2000).

3.5. PHASE TWO: SLEEP DIFFICULTIES IN PRIMARY SCHOOL-AGED CHILDREN: A ROLE FOR THE EDUCATIONAL PSYCHOLOGIST

3.5.1. DESIGN

This section describes the methodology for phase two of the research. I present the research questions before describing the participants, measures and procedures, before discussing the methods of analysis and aspects of credibility.

Phase two focussed on a non-experimental evaluation study of a researcher-designed Sleep Club intervention for children using a pre- and post-test design. To examine the findings obtained in phase one in greater detail, I explored quantitative and qualitative data from a smaller group of the original participants from phase one. Case studies of selected participants were compiled to inform a cross-case analysis. The purpose of phase two was to explore sleep-related views and knowledge and to evaluate the impact of the Sleep Club intervention using time-series analysis (Table 3). Case studies enabled me to gain more information about the participants' contexts while enabling me to assess changes in pre- and post-intervention sleep knowledge and behaviour. This aspect of the design is discussed further in section 3.5.4 (p.69).

3.5.2. RESEARCH QUESTIONS (RQ)

4. What are the reported differences in the sleep behaviour of specific children between the pre- and post-intervention periods?
5. How do selected participants describe individual primary school-aged children's sleep-related experiences?
6. What is the impact of the psycho-educational intervention on child participants' sleep knowledge post-intervention?
7. How do participants evaluate the Sleep Club intervention and process?

Table 3

The data collection time series matrix

Collection period	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6
(Date ranges provided cover the individual start times for each of the six schools)	Oct – Dec 2017	Nov 2017-Mar 2018		Dec 2017 – Mar 2018	Jan – Mar 2018	Feb – April 2018
Research focus:	Pre-intervention data (obtained from phase one)	Start of the Sleep Club intervention	Six week Sleep Club intervention	End of the Sleep Club intervention	Four weeks post-intervention	Eight weeks post-intervention
Parent data	Child Sleep Habits Questionnaire (CSHQ) score. One week sleep diary.	Weekly sleep diary data.			Child Sleep Habits Questionnaire (CSHQ) score. One week sleep diary.	Child Sleep Habits Questionnaire (CSHQ) score. One week sleep diary. Sleep Club Evaluation.
Child data	- The Sleep Self Report (SSR).	-Sleep knowledge quiz.		Sleep knowledge quiz. Sleep Club evaluation.	The Sleep Self Report (SSR).	The Sleep Self Report (SSR).
Teaching Assistant (TA) data				Sleep Club evaluation.		
Field notes	Reflections on the intervention sessions, and observations and comments noted.					

3.5.3. PARTICIPANTS

All participants from the responding six Junior and Primary schools that provided consent to take part in phase one were invited to participate in phase two. Once consent had been obtained from parents and school staff and assent obtained from children, five schools remained. There were 29 participants (teaching assistants, n= 2; parents/carers, n= 13; children, n= 14).

The purpose of this research was to explore the phenomenon of sleep difficulties in primary school-aged children who do not have a psychiatric or medical diagnosis. However, given the small numbers of children recruited for phase two, all children were permitted to take part. Participants in the current study were not randomly allocated to groups, nor was a control group created. These factors were due to the permitted start date of the Sleep Club, which differed between schools, and due to the varied number of participants in each school. Table 4 presents a summary of the participant information. The children taking part in this phase are identified with the same identifying letter (e.g. 'child F') that they brought forward from phase one.

Table 4

Participants involved in phase two

School	Child	Gender	Age	Psychiatric diagnosis/medication?	
1 TAs n=1	F	M	11	Yes	
	G	M	10	Yes	
	I	M	10		
	J	F	10	No	
	K	M	8		
	S	F	7		
2 TAs n=0	L	M	6	Yes	
	M	M	8	No	
	N	M	8		
3 TAs n=1	E	M	6	No	
	O	M	6	Yes	
4 TAs n=0	Q	F	9	Yes	
	R	M	10	Yes	
5 TAs n=0	D	M	8	Yes	
<hr/>					
Total: TAs n= 2	Total children n= 14	Total parents^ n= 13		Diagnosis/ medication, n=7	No diagnosis/medication n=7

^One parent had two children involved in the research.

TAs= Teaching assistants.

CASE STUDY SELECTION

Case studies were used to enable me to examine the results obtained from phase one in greater depth. Zainal (2007) defined case studies as a method that allows for an in-depth and holistic investigation into complex phenomenon, whereas Yin (2003) suggested it can be used to answer 'how' and 'why' questions. Case studies can explore a case over a brief period and supports the use of multiple methods of data collection to combine information about the case using a triangulated approach (Creswell, 1998; Cronin, 2014). This method enables the researcher to have a greater awareness and understanding of the context of the case. I explored six cases in greater depth, as Robson (1993) argues that this sample size is a respectable number for case study research. A combination of information contributed to each case study, including:

- **Parent information:** obtained from pre- and post-intervention CSHQ survey responses, interview (consultation) notes, field notes, and the Sleep Club evaluation;
- **Child information:** obtained from pre- and post-intervention SSR survey responses, field note diary data, Sleep Club session information (field notes) using recorded statements, drawings, and the Sleep Club evaluation responses.

Seven out of 14 children (50%) in phase two had or were undergoing assessment for a sleep-impacting diagnosis or were taking medication for sleep (such as melatonin, a medication that promotes sleep). The literature review highlighted the impact of a range of conditions on children's sleep. Therefore, in line with the original aims of the study greater priority was placed on children who did not have these personal circumstances. Due to timing constraints, half of the selected cases were chosen four-weeks' post-intervention. I chose the remaining three participants once I had completed the data collection eight-weeks' post-intervention.

The cases were selected based on; similarities (n=3) and differences (n=3) between parent and child reports about the child's sleep. Two parents of the children selected for the case studies had completed interviews. I prioritised the children with parental interviews in selection to enable me to use this information, and those who had contributed a range of sources of information to explore me to their views. Pratt, McGuigan, and Katzev (2000) suggested that poor response rates can occur over time. In the current study, all children had at least one piece of data that was not returned. As a result, missing data was not a factor in selection. Further considerations made about using the case study method are presented below in Table 5.

Table 5

Advantages and disadvantages of the case study

Advantages	Disadvantages
The analysis is representative of the context in which the data were obtained.	Lack of rigour due to researcher bias.
The information obtained can support researchers to unpick complex phenomena in a contextual way.	Tend to use a small number of participants making generalisation difficult.
Case studies allows for the use of a mixed methods approach.	Can be time-consuming and produce a vast amount of data.

Based on Yin (2013) and Zainal (2007)

The disadvantages identified above have been managed using direct reporting of participants' voices through the measures used. By employing a case study design, I have aimed to support the quantitative findings by providing greater insight into participants' views. With careful planning and liaison with schools, I developed a time-bound data collection process that adapted to the challenges of real-world research (Robson, 2002).

3.5.4. MEASURES

SLEEP-RELATED INFORMATION:

SURVEYS

Boynton, Wood, and Greenhalgh (2004) suggested that the use of validated surveys can save time and money. Phase one has described in detail the selection of the child-rated Sleep Self Report (SSR), the Teacher Daytime Sleepiness Questionnaire (TDSQ) and the parent-rated Child Sleep Habits Questionnaire (CSHQ). These measures were used in phase two of the research and were chosen due to high ratings of being established or close to being established in the literature (Lewandowski, Toliver-Sokol, & Palermo, 2011).

Phase two relies on subjective measures of reporting and recording sleep. Surveys enable rich data to be obtained to support analysis and consultation, and they are a cost-effective option for research (Robson, 1993). Robson (1993) suggested that surveys that use closed questions require less time and effort from participants than open questions, as participants may need time to formulate a response to open questions. Conversely, Peterson (2000) stated that surveys that do not require much thought might result in respondents rushing through questions for the speed of completion. For this reason, all respondents were given at least 10 days to complete their respective surveys.

PARENTS: SLEEP DIARIES (SLEEP-ONSET AND SLEEP DURATION)

Sleep diaries involve the recording of sleep behaviours and times with their corresponding days. Sadeh (2015) suggested that sleep diaries may further obtain unique and personalised information useful in research. Sleep diaries, therefore, align with the current study and provide time-specific information related to individual experience and perceptions about sleep. Parents were asked to submit a weekly seven-day sleep diary (adapted from Durand, 1998; Appendix 10, p.289) throughout the Sleep Club intervention to enable me to

understand children's sleep-related behaviours. The sleep diary asked parents to complete a table to record the time that the child goes to bed, the time that the child fell asleep and woke up and asked parents to detail any difficulties that occurred for the child during the night and the duration of these difficulties.

PARENT VIEWS

RESEARCH INTERVIEWS AND FIELD NOTES

Creswell (2007) suggested that research interviews provide context to individual constructs, while McNamara (1999) proposed that interviews enable researchers to obtain personal accounts of individual experience. The exploration of parental concerns can bring about changes with skill transfer concerning individual and interacting systems (Wagner, 2000). Such methods complement a pragmatic approach to research.

Participants were offered up to 60-minutes for a research interview and I telephoned them at a mutually convenient time. Robson (1993) put forward that a minimum research interview of 30-minutes yields useful data, whereas going over 60-minutes places an unreasonable demand on participants' time. The interview followed a semi-structured, open-ended style to consider the participant's priorities. An example of the interview questions are provided in Appendix 11 (p.290) The format was chosen to enable flexibility for parents to explore areas of concern that were a priority for them, but also for me to clarify responses or explore them further. The questions were asked when most appropriate, in no particular order and questions were omitted as appropriate (Robson, 1993). Following the interview, several child-centred recommendations were made to support parents with difficulties that were identified.

Field notes were taken to collect data both during and after the interview. Elliott, Ryan, and Hollway (2012) suggested that field notes can provide contextual

and subjectively experienced information into research. Interviews were described by Alshenqeeti (2014) as “one of the most effective methods for attaining and exploring” constructs (p.40). Robson (2002) stated that the use of audio transcripts could provide greater accuracy during the coding process. However, transcription can be time-consuming, and Robson argued that this can lead to challenges with anonymity.

ADVANTAGES AND DISADVANTAGES OF INTERVIEWS

Interviews are a useful method of obtaining the depth and breadth of person-centred views while allowing some cross-comparison of the data. Interviews can provide rich information and enable prior responses to be explored in greater detail. The use of summarising and paraphrasing and clarifying to check understanding helped to alleviate concerns with misunderstandings. Interviews may create interviewer bias due to rapport or over-identification, though this was managed through my weekly supervision by a qualified EP. Interviews can be intrusive, time-consuming to arrange, carry out and to analyse. Such factors were mitigated as parents voluntarily signed up for the telephone consultation. I also anticipated that not all parents would utilise the consultation offer due to time demands (Robson, 1993).

PRE- AND POST-INTERVENTION DATA

Pre-intervention data were obtained from children (SSR) and their parents (CSHQ) who consented to take part in phase one. Pre-intervention sleep diary data were obtained one-week the Sleep Club commenced in the respective school. All pre-intervention data enabled me to record a baseline of information about each child’s sleep behaviours, the time it took for children to fall asleep (sleep-onset), and the time that children spent asleep over a seven-day period (sleep duration). Children’s sleep knowledge was also measured using a researcher-designed sleep knowledge quiz.

I used a delayed post-intervention assessment that replicated the collection of the above survey and sleep diary data for the four- and eight-week post-intervention information. At the end of the Sleep Club, children's sleep-related knowledge was assessed with the sleep knowledge quiz. The use of multiple recordings of data provided points of comparison from the beginning to the end of the intervention (Ary, Jacobs, Razavieh, & Sorensen, 2006). As a result, I could assess changes in sleep behaviour and knowledge over time and to make comparisons between participants. I considered the delayed post-intervention method to be an appropriate approach to evaluate the intervention and to consider multiple streams of data.

ADVANTAGES AND DISADVANTAGES OF PRE- AND POST-INTERVENTION DATA

A challenge with pre- and post-intervention data is that it requires at the very least, pairs of responses to enable meaningful comparisons to be made. Pratt, McGuigan, and Katzev (2000) put forward that drop-out rates typically occur over time in pre-test post-test research, which can reduce the availability of the data to be analysed. In contrast, Cho, Johnson, and VanGeest (2013) recommend that multiple opportunities for contacts can increase response rates. Where possible, school staff supported parents to return data, and I provided additional surveys and sleep diaries to parents when required.

Pre-test post-test designs may cause difficulty in inferring causality due to several confounding variables that may interact with the areas being measured. For example, do sleep behaviours improve due to the Sleep Club intervention, or due to less home conflict? The use of case studies to provide contextual qualitative and quantitative data can overcome validity difficulties due to the triangulation of data, and participant views. Such an approach was undertaken in the current study. Robson (1993) supported the use of pre-test post-test designs stating that its use in non-experimental research creates no significant problems with validity.

THE SLEEP CLUB INTERVENTION

The Sleep Club intervention that I designed and created is a package of sleep-related information and support that was offered to parents and children, this included:

- The manualised Sleep Club intervention delivered to children, which details the process and content of the intervention (Appendix 12, p.291);
- The Sleep Support Booklet offered to parents (Appendix 13, p.302);
- The Sleep Me Happy Website (<https://smhappy.wixsite.com/smhappy>) for use by parents and children (Appendix 14, p.303);
- One 60-minute or two 30-minute telephone interviews offered to parents.

RATIONALE FOR DELIVERING AN INTERVENTION

Norwich (2005) put forward that EPs are well placed to develop and deliver psychologically based interventions with children and the adults around them. The practice of providing parents with additional written information and materials to support sleep interventions has been established in the literature (Montgomery, Stores, & Wiggs, 2004; Newark, 2013). Therefore, the Sleep Support Booklet and the Sleep Me Happy website were disseminated to parents as part of the intervention to increase parent knowledge even in the absence of them completing a telephone consultation.

I created the Sleep Club intervention considering the few contributions in the literature about primary school-aged children's sleep, and to create a resource for children that had been developed by an EP. I wanted an approach that considered evidence-based recommendations, and for both children and parents to be involved with an intervention to promote better sleep and sleep knowledge (Blunden, Benveniste, & Thompson, 2016). Additionally, it was important to incorporate methods to increase children's awareness of strategies

to manage pre-sleep physical and cognitive arousal (Gregory, Willis, Wiggs, Harvey, & the STEPS team, 2008; Sadeh, 2005). Appendix 15 (p.305) provides an overview of the Sleep Club Intervention and the psychology that underpins it.

MEASURE OF SLEEP KNOWLEDGE: THE SLEEP QUIZ

A 10-item multiple choice sleep quiz was given to all children at the beginning and at the end of the Sleep Club intervention to assess their baseline knowledge of sleep and any learning that had taken place. The items used in the sleep quiz were based on the Sleep Club sessions that the children were to attend. The quiz was scored adding one point for each question that was answered in full. Question five provided a multiple response item and was scored with one point for each correct answer. A maximum score of 16 was possible for the quiz before scores were converted into a percentage score ranging between 0 – 100%.

MEASURES OF EVALUATION

EVALUATION OF THE SLEEP CLUB INTERVENTION

Robson (1993, p.180) put forward that process evaluation answers “what” or “how” questions and it was important to follow Blunden, Benveniste, and Thompson’s (2016) recommendation to evaluate the intervention. To reduce bias in the evaluations, I was not present in the collection of any evaluation data. The SENCO collected the responses from parents and the teaching assistant, and the evaluations from children were carried out with the support of a teaching assistant. Appendix 16 (p.308) contains a copy of the evaluation forms for all participants.

A six-item researcher designed semi-structured questionnaire was given to children to help them to evaluate the Sleep Club process. Children could rate

the Sleep Club on a scale of one to 10, with answers ranging from 'not very good', to 'very good'. The teaching assistants that supported the Sleep Club intervention were asked to evaluate the Sleep Club using a six-item semi-structured questionnaire that I designed. School staff rated the Sleep Club on a scale of one to 10, described respectively as 'not very good', to 'very good'.

A nine-item researcher designed semi-structured questionnaire was given to parents to evaluate their experience of the Sleep Club process and its impact on their child's sleep behaviour and sleep knowledge. Parents could rate the Sleep Club on a scale of one to 10, described as 'not very good', to 'very good' respectively.

A summary of the methods and measures used and the corresponding research questions that they address is presented in Table 6.

FIELD NOTES

The use of field notes has been recommended by Thornberg (2012) to support the fidelity of qualitative research. Throughout phase two I kept a log of field notes that detailed my observations, such as direct comments made by children about their sleep; noting my sense-making process about what I had observed; and methodological information, such as notes that recorded the research process.

Table 6

Phase two research questions, methods and measures

Research Question	Method	Measure
Four: what are the reported differences in the sleep behaviour of specific children between the pre- and post-intervention periods?	Quantitative	CSHQ / SSR
Five: How do selected participants describe individual primary school-aged children's sleep-related experiences?	Mixed-method	CSHQ / SSR Field notes Sleep Club activities Evaluation Sleep Diaries Interview
Six: What is the impact of the psycho-educational intervention on child participants' sleep knowledge post-intervention?	Quantitative	Sleep knowledge quiz
Seven: How do participants evaluate the Sleep Club intervention and process?	Mixed-method	Semi-structured Evaluation

3.5.5. PROCEDURE

I advised school staff that they would have access to a free six-week sleep intervention and that they would receive some complimentary copies of the Sleep Support Booklet and a copy of the Sleep Club Manual.

The school SENCO was provided with the requirements for the delivery of the Sleep Club sessions, such as the type of room required, duration and dates of the sessions and importance of a consistent and uninterrupted room. The SENCO was encouraged to enable a teaching assistant (TA) to observe at least two of the Sleep Club sessions to enable them to understand the format and

delivery, should the school wish to replicate the sessions in the future. The TA also supported the collection of children's evaluation forms. Where a TA was not present, the SENCO supported the completion of the forms.

School staff provided parents with a research envelope one week before the start of the intervention. The envelope provided parents with an overview of the Sleep Club sessions and a copy of the Sleep Support Booklet, which contained information about how to view the Sleep Me Happy website. Parental incentives offered are detailed below. Boynton, Wood, and Greenhalgh (2004) state that incentives in research can influence response rates. Parents were provided with seven sleep diaries, which described how they should be completed and where to return them. The research envelope provided parents with information about the interviews and how they could be set up. The interview could take place at any time during the 14 weeks of the research (including the six weeks of the intervention, four-weeks' post-intervention and eight-weeks' post-intervention).

The six Sleep Club sessions were delivered on either a Thursday or Friday at a consistent day/time identified as convenient by the school. The sessions followed the structure presented in the Sleep Club Intervention Manual. All materials required by the Sleep Club were pre-arranged to ensure the best use of time during the sessions. All children received a small weekly reward and certificates for participation and contributions in the session. The first and last sessions were used to assess children's sleep knowledge, whereas the remaining sessions enabled me to teach sleep-related information and to obtain child views about their sleep, which was recorded in my field notes.

At the end of the Sleep Club intervention, the school SENCO was asked to provide the TA and the children taking part in the research the intervention evaluation survey to complete in my absence. The class teacher provided parents with a sleep diary and the CSHQ four and eight weeks' after the end of the intervention with a reminder of the nature of its completion. Children completed an SSR in school, four- and eight-weeks post-intervention supported by a staff member. The school research link and the TAs were provided with a

small surprise box of chocolates to thank them for their support with the research.

3.5.6. DATA ANALYSIS

Quantitative data were analysed using IBM SPSS Statistics software version 24. Due to non-parametric data as discussed in phase one, the Wilcoxon Signed Ranks test was performed using the exact method as Shieh, Jan, and Randles (2007) and Whitley and Ball (2002) have suggested that the test maintains adequate power with small sample sizes. A Bonferroni adjustment for multiple comparisons was made resulting in a significance level of $p < .02$. All tests except where specified used an alpha level of .05. Descriptive statistics, frequencies and percentages were calculated to provide a summary of results. Spearman's rho correlations were conducted using guidance from Cohen (1988), who suggests appraising r_s value associations of .2 (as small); .5 (as moderate); and .8 (as large).

Thematic analysis of the qualitative data was conducted to identify themes, concepts, and patterns of behaviour following the steps put forward by Braun and Clarke's (2006) six stage thematic analysis procedure. Qualitative data were sorted and categorised using NVivo for Mac, version 11.4.3. NVivo enabled me to code the data at a semantic level. I was guided by the data using an inductive approach to identify common themes related to the research question using the following steps in the thematic analysis:

1. Familiarisation of the data.
2. Generating initial codes.
3. Searching for themes.
4. Reviewing themes.
5. Defining and naming themes.
6. Producing evidence of the themes identified in the data.

The thematic analysis is described further in Appendix 17 (p.313). I considered the use of Aronson's (1995) four-stage thematic analysis process for pragmatic research. However, I felt that the steps did not provide an explicit description to support the review of codes from initial code generation. This may result in an anecdotal approach, which has been criticised in the literature (Bryman, 1988; Laubschagne, 2003).

A cross-case analysis was used to synthesise qualitative and quantitative data for selected participants. I used Khan and VanWynsberghe's (2008) recommendations that cross-case analysis enables the comparison of similarity and difference, it can help to identify and enhance understanding of relationships among a small number of cases, and it enables the development of concepts to produce rich and new knowledge.

3.5.7. CREDIBILITY, TRANSFERABILITY, AND DEPENDABILITY OF THE QUALITATIVE ANALYSIS

Lincoln and Guba (1985) and Creswell and Miller (2000) proposed that some overarching assumptions must be addressed to achieve a rigorous analysis of qualitative data, this includes:

CREDIBILITY relating to a confidence in the accuracy of findings.

- **Persistent observation:** Credibility was achieved using field notes. I noted down any observations during and after the six-week Sleep Club intervention sessions took place.
- **Triangulation:** I employed triangulation of methods (interview, questionnaire, and observation) to enable me to gather information from a variety of sources (primarily parents, children, and teaching assistants) using a range of methods.
- **Peer debriefing:** I engaged in regular supervision to discuss my research with both of my research supervisors and LA placement supervisor for research development and debrief.

- **Member checks:** Though Lincoln and Guba (1985) recommend that researchers present the data back to the participants that it has come from to clarify an accurate representation, this was not possible due to the constraints on time and the end of the Sleep Club coinciding with the children preparing for standardised testing.

TRANSFERABILITY relating to the ability for findings to apply in other contexts.

- I have provided everything that a reader would need to be able to understand and interpret the research using a detailed account of required factors.

DEPENDABILITY relates to the ability for the findings to be consistent and replicated.

- I used triangulation in this research as a measure to assess the dependability of the research using various measures and obtaining participant views.
- I created a manual to guide my systematic delivery of the Sleep Club across the schools involved. This manual would enable the Sleep Club to be replicated in various settings using the detailed procedures and resources required for each setting.
- A quasi-inquiry audit: was completed by my research supervisors to examine the processes described and to provide me with feedback.

CONFIRMABILITY relates to the degree that the findings are shaped by the participants, and not by the researcher.

- Confirmability was established using a log of field notes, which helped me to reflect on the Sleep Club intervention, research process and on the completed interviews.
- The supervision received helped me to examine the processes described with greater objectivity.

3.6. ETHICAL CONSIDERATIONS OF BOTH PHASES OF THE RESEARCH

The procedures in this study followed the guidelines for good ethical research practice put forward by Gardner and Coombs (2010) and the Code of Human Research Ethics (British Psychological Society; BPS, 2014). The University of Exeter Ethics Committee approved the research proposals of each phase to commence on the following dates: phase one: 27th March 2017 and phase two: 7th November 2017. The certificates of approval for both phases are presented in Appendix 18 (p.314).

THE VOLUNTARY NATURE OF PARTICIPATION

All participants were given the opportunity to have any questions answered before participation. They were provided with an information sheet and consent form to review and complete, which they signed to disclose that they understood the nature of the research and the voluntary basis for their involvement. Parental consent forms included a section for them to provide consent for themselves and their children. However, assent was also obtained from children as recommended by Wendler (2006). Both parent and child were required to consent to enable participation in the research.

THE INFORMED NATURE OF PARTICIPATION

Participants were provided with detailed information about how much time each stage of their involvement would approximately take to inform them about any commitment that they would be making in advance. All participants were informed that their original data would be fully anonymised and all original materials with any identifying participant details would be permanently deleted. Participants were also made aware of how their data would be handled and stored, and they signed to indicate that they understood this information and gave consent to take part.

ASSESSMENT OF POSSIBLE HARM/SAFEGUARDING

Participants were assessed to be at low-risk of harm when taking part in this research. Using surveys, sleep diaries, a quiz and a semi-structured interview meant that participants could respond to any or all of the questions that were provided to avoid them disclosing something that made them feel uncomfortable. At no time was I required to be alone with individual children in their schools for any stages of the research. However, I have received a full and clear enhanced Disclosure and Barring Service (DBS) certificate, which was shown to all participating schools.

It was possible that children could disclose information that was of a sensitive or safeguarding nature. At the beginning of every session, I informed the children that any information that is shared in the Sleep Club would remain in the Sleep Club unless the information that is shared makes me feel concerned that a child or other person could be at risk of harm. Children were also provided with a card for Childline if they wished to discuss anything that was troubling them. Safeguarding procedures were created in case a child disclosed something to me of concern.

DEBRIEFING PARTICIPANTS

At the end of the research, children, parents and teachers were given a debriefing letter thanking them for their participation in the research and signposting them to appropriate services should they be concerned about their sleep, or their child's sleep. These letters can be found in Appendix 19 (p.316).

CONFIDENTIALITY, DATA PROTECTION AND THE RIGHT TO WITHDRAW

During the parent consultation parents were asked for verbal consent if they wished for me to share information that they were concerned about with their school SENCO. In phase one and in line with the General Data Protection Regulations (Information Commissioners Office, 2017) any identifying information from the participants was anonymised within 48-hours of receipt. All participants could withdraw from the research and ask for their data to be withdrawn up to this stage. All children were reminded at the beginning of each sleep-club session that they could choose to withdraw from the intervention at any time without penalty. Children's data were randomly coded by assigning each child with an alphabetic letter that was consistent across the two phases.

The data in this research was backed up onto an encrypted storage device pending transfer onto the U: drive in my secure file space on The University of Exeter's central file server. Any individual files created for the research were stored under password protection and locked in a room in my home before being transferred within the given timeframe to the secure server. Any identifying hardcopy data were securely disposed of and destroyed using the Local Authority locked and secure shredding consoles for confidential waste.

CHAPTER 4. PHASE ONE: FINDINGS

4. INTRODUCTION

Phase one explored teacher, parent, and child views about children's sleep, and the relationship between these views and children's psychosocial functioning, and academic outcomes. This chapter presents the descriptive data relevant to each research question. The similarities and differences between parent, child, and teacher responses are put forward before I explore the relationships in the data. To conclude, a summary of the chapter is presented ahead of Chapter Five, which presents the findings of phase two.

4.1. DESCRIPTIVE STATISTICS

Data were obtained from a total of 59 participants (teachers, $n = 16$; parents/carers, $n = 21$; children, $n = 22$). The children were between six to 11 years of age ($Mdn = 8$). Most of the participants were Caucasian ($n = 18, 82\%$); most of the children were male ($n = 15, 68\%$); all teachers and most of the parents were female ($n = 17, 81\%$). Of the 22 children, 14 children (64%) reported that they have trouble sleeping; 13 children (59%) reported that they do not like to go to sleep, and 14 out of the 22 children (64%) reported sometimes or usually sleeping too little.

Appendix 20 (p.321) puts forward additional demographic information for all participants. The descriptive data for children, teachers, and parents are presented in full in Appendices 21, 22, and 23 respectively p.326, p.330, p.333).

Figure 6 displays the bedtimes reported by the children on school days and during the weekend plus one hour. For example, '9' equates to nine to 10 pm. Children reported that they went to bed on school days between nine and 10 pm (Mdn = 8.5). On weekends children reported going to bed between nine pm and 10 pm (Mdn = 9).

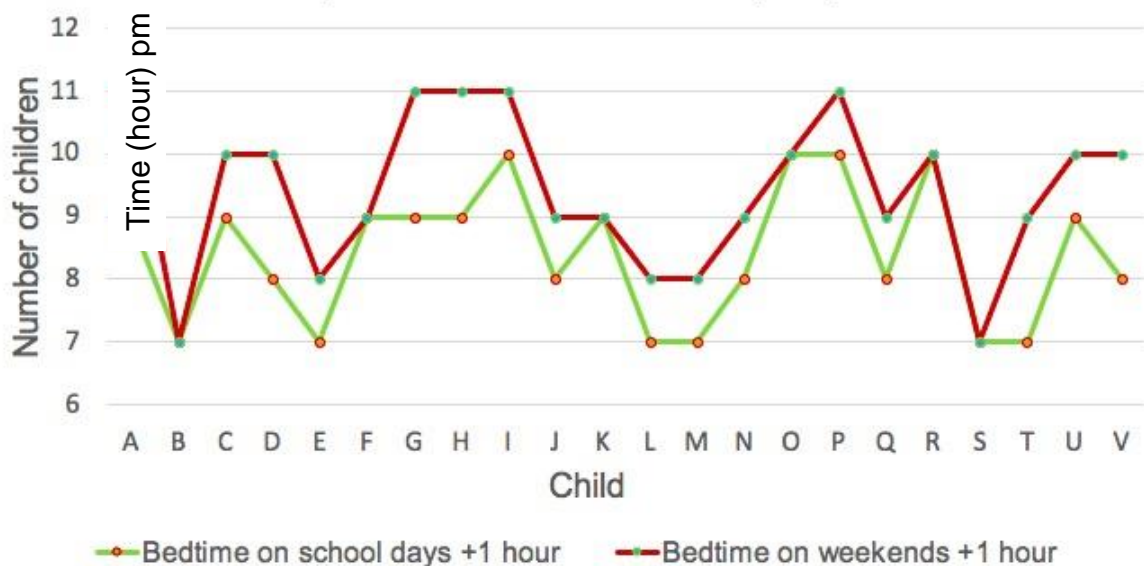


Figure 6. Children's self-reported bedtimes.

The authors of the SSR and the TDSQ state that higher scores on these scales indicate greater sleep difficulties. Therefore, as described in greater detail in the methods section, children above the respective scale midpoint are identified as those with probable sleep difficulties, whereas children with a score below the midpoint are reported as those with sleep difficulties below the threshold. Owens, Spirito, and McGuinn's (2000) study provided normative mean scores from a community sample of 469 healthy children (those without an identified or diagnosed sleep difficulty or disorder). These scores were used to compare the children in the current study to those in the normative sample.

4.2. RQ ONE: TO WHAT EXTENT DO PRIMARY SCHOOL-AGED CHILD PARTICIPANTS EXPERIENCE DIFFICULTIES WITH THEIR SLEEP ACCORDING TO PARENTS, TEACHERS AND CHILDREN?

Table 7 presents the descriptive data for the Sleep Self-Report scale to provide an overview of the scores reported by the children.

Table 7

Child-rated SSR and SSR subscales

SSR	No. of items ^a	Child scores ^b		Possible range ^c	Scale midpoint			
		Min	Max		score	Median	<i>M</i> ^d	<i>SD</i> ^e
Bedtime behaviour	12	15	30	12 - 36	24	22.5	22.50	3.66
Sleep behaviour	7	8	18	7 - 21	14	13	12.55	2.58
Daytime sleepiness	4	5	11	4 - 12	8	7.5	7.36	1.76
SSR total score	23	34	53	23 - 69	46	43	42.41	5.05

n=22. ^a Number of survey items that are in each scale. ^b Minimum and maximum scores for the child.

^c The range of possible scores that can be achieved on the scale and subscales. ^d *Mean*. ^e *Standard deviation*

The Sleep Self-Report (child measure)

Fourteen out of 22 children (64%) reported sometimes or usually staying up late when their parents thought they were asleep. Eighteen out of 22 children (82%) reported sometimes or usually waking up at night when their parents thought they were asleep. *Figure 7* presents the frequency data for children's SSR total sleep difficulty scores ($M= 42.41$, $SD = 5.05$). The average score was lower than the midpoint value (46) of the scale. Of the 22 children that took part in the study, 16 children (73%) were below the total sleep difficulty threshold, and six children (32%) were classified as having a probable sleep difficulty.

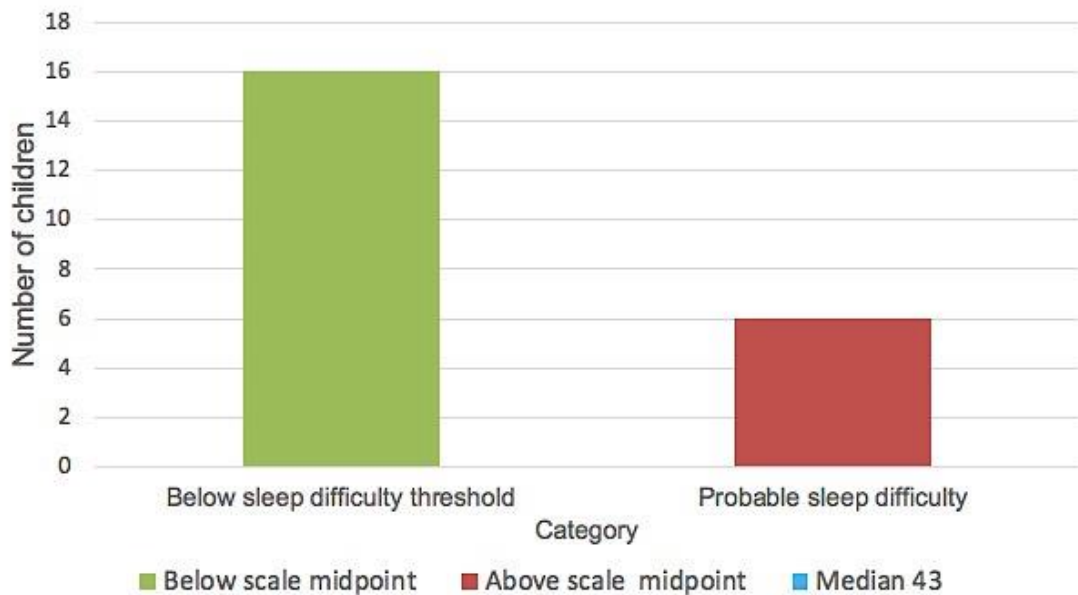


Figure 7. Categorisation of total sleep scores (SSR).

SSR SUBSCALES

BEDTIME BEHAVIOUR

Figure 8 presents the frequency data for SSR bedtime behaviour ($M=22.5$, $SD= 3.66$) that were categorised by the level of sleep difficulty. The average score

was lower than the midpoint value (24) of the subscale. Of the 22 children who took part, 14 children (64%) were below the threshold for a bedtime difficulty and eight children (36%) had a probable bedtime difficulty.

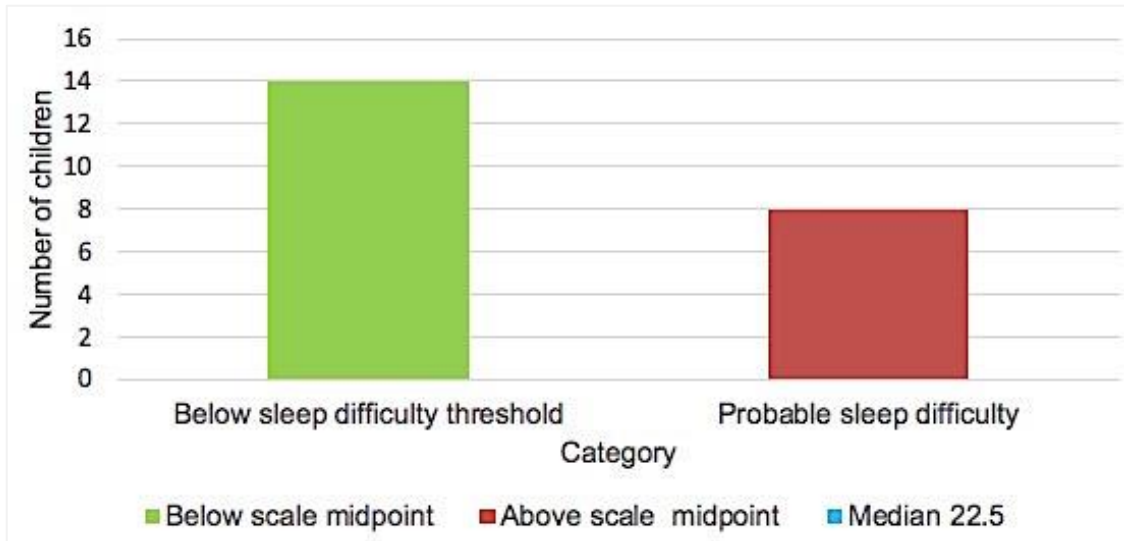


Figure 8. Categorisation of bedtime behaviour scores (SSR).

SLEEP BEHAVIOUR

Figure 9 shows the frequency data of the SSR sleep behaviour subscale that are categorised by the level of sleep difficulty. The average score ($M=12.55$, $SD= 2.58$) was lower than the possible midpoint value (14) of the subscale. Of the 22 children who responded, 16 children (73%) were below the threshold of a sleep behaviour difficulty, and six children (27%) had a probable sleep behaviour difficulty.

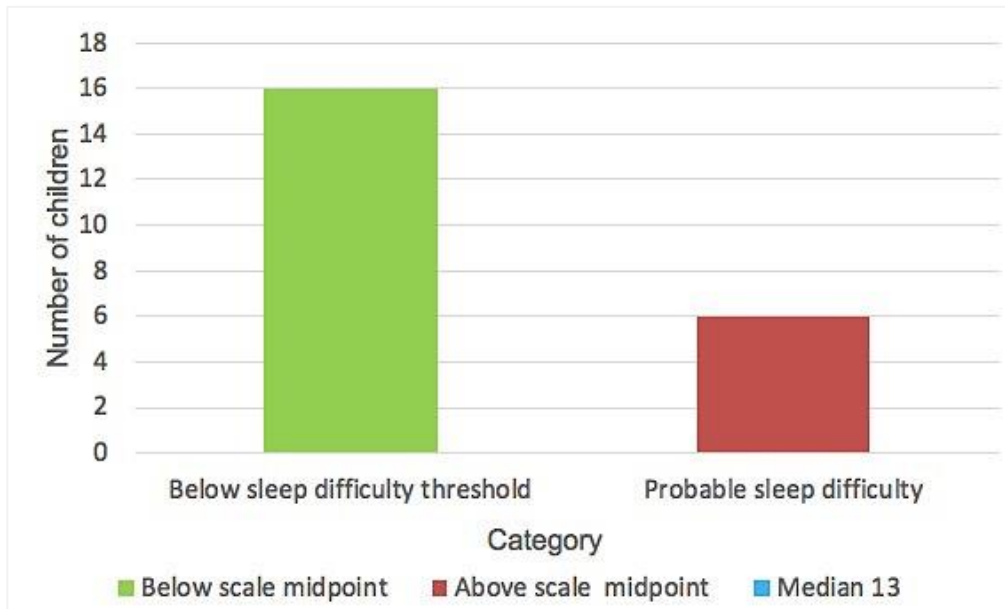


Figure 9. Categorisation of self-rated sleep behaviour scores (SSR).

DAYTIME SLEEPINESS

Figure 10 presents the frequency data of the SSR daytime sleepiness subscale ($M= 7.36$, $SD= 1.76$) that were categorised by the level of sleep difficulty. The average score was lower than the possible midpoint value (8) of the subscale. Eleven out of 22 children (50%) were below the threshold of daytime sleepiness, and 11 children (50%) had probable daytime sleepiness (SSR).

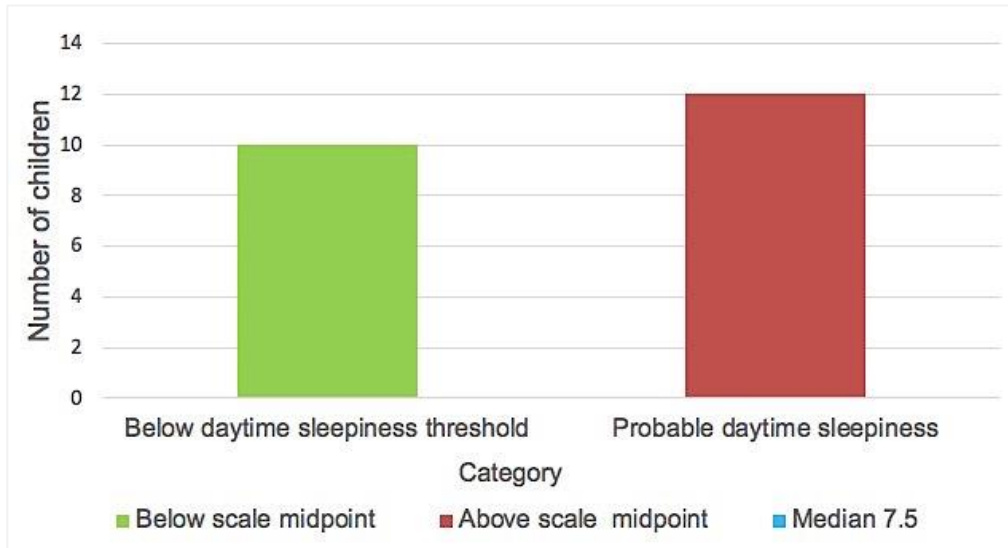


Figure 10. Categorisation of daytime sleepiness scores (SSR).

Figure 11 provides a summary of all findings from the SSR measure. Overall, children reported greater difficulties in the area of sleep behaviour and daytime sleepiness difficulties. Table 8 indicates that Spearman’s rho correlations found a non-significant correlation ($p > .05$) between all SSR subscale pairings.

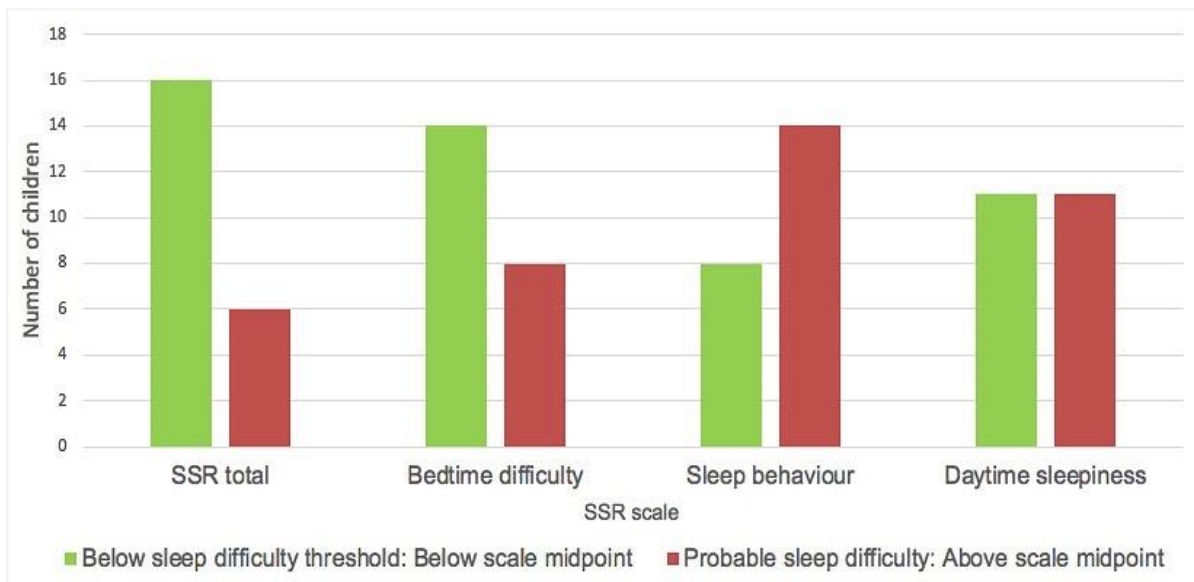


Figure 11. Children per SSR category of sleep difficulty.

Table 8

Summary of correlations for the SSR subscales

SSR (child measure)	Bedtime resistance score	Sleep behaviour score	Daytime tiredness score
Bedtime resistance	–		
Sleep behaviour	.241	–	
Daytime tiredness	-.354	.411	–

n=22. *Correlation is significant at the .05 level (Two-tailed test).

**Correlation is significant at the .01 level (Two-tailed test).

TEACHER DAYTIME SLEEPINESS QUESTIONNAIRE (TEACHER MEASURE)

The descriptive statistics for the Teacher Daytime Sleepiness Questionnaire is presented in Table 9. The median score of the TDSQ highlighted that children scored below the midpoint value (20) of the scale. Teachers rated 21 out of 22 children (95%) as being below the threshold for a daytime sleepiness difficulty, and one child (5%) had a probable daytime sleepiness difficulty (*Figure 12*).

Table 9

Descriptive data for the teacher-rated TDSQ

TDSQ	n^a	No. of items ^b	Child scores ^c		Possible range ^d	Scale midpoint score	Median	M^e	SD^f
			Min	Max					
TDSQ	22	10	10	21	10 - 30	20	12	12.45	2.61

^a Number of children. ^b Number of survey items that are in each scale. ^c Minimum and maximum scores for the child. ^d The range of possible scores that can be achieved on the scale and subscales. ^e Mean. ^f Standard deviation

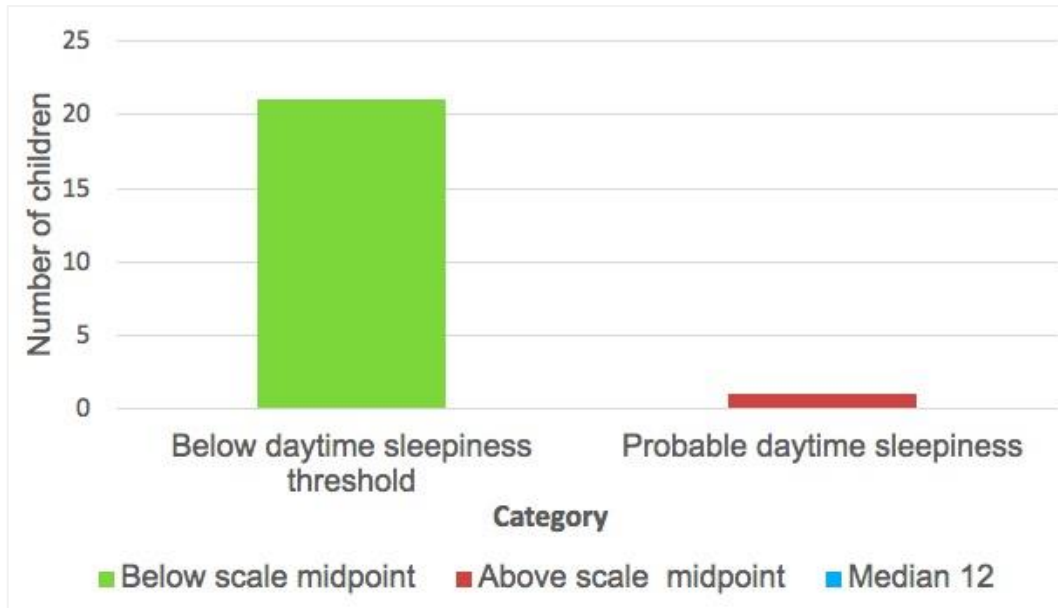


Figure 12. The prevalence of children's sleep difficulties (TDSQ).

THE CHILDREN'S SLEEP HABITS QUESTIONNAIRE (PARENT MEASURE)

The descriptive statistics of the Children's Sleep Habits Questionnaire is presented in Table 10.

Table 10

Descriptive data for the CSHQ and CSHQ subscales

CSHQ	No. of items ^a	Child scores ^b		Possible score ^c			<i>M</i> ^d	<i>SD</i> ^e	Normative values ^f	
		Min	Max	Lowest	Highest	Median			<i>M</i>	<i>SD</i>
Bedtime resistance	6	6	14	6	18	9	8.68	2.36	7.06	1.89
Sleep-onset delay	1	1	3	1	3	2	1.86	.83	1.25	.53
Sleep duration	3	2	8	3	9	5	5.14	1.94	3.41	.93
Sleep anxiety	4	4	11	4	12	5	5.77	1.95	4.89	1.45
Night wakings	3	3	8	3	9	3	3.68	1.39	3.51	.89
Parasomnias	7	7	14	7	21	9	9.50	2.43	8.11	1.25
Sleep-disordered breathing	3	3	8	3	9	3	3.55	1.26	3.24	.63
Daytime sleepiness	8	7	17	4	20	12	11.82	2.95	9.64	2.80
CSHQ total score	33	32	63	31	97	49	47.27	8.92	<41 (cut off).	

n=22. ^a Number of survey items that are in each scale. ^b Minimum and maximum scores for the child. ^c The range of possible scores that can be achieved on the scale and subscales. ^d Mean. ^e Standard deviation. ^f Normative values are derived from the control group put forward by Owens, Spirito, and McGuinn (2000).

The average parent-rated CSHQ total score was 47.27 (SD=8.92). Sixteen out of 22 children (73%) had CSHQ scores that indicated the presence of a sleeping difficulty (CSHQ score ≥ 41). Parents reported the number of children above and below the threshold for a sleep difficulty (*Figure 13*).

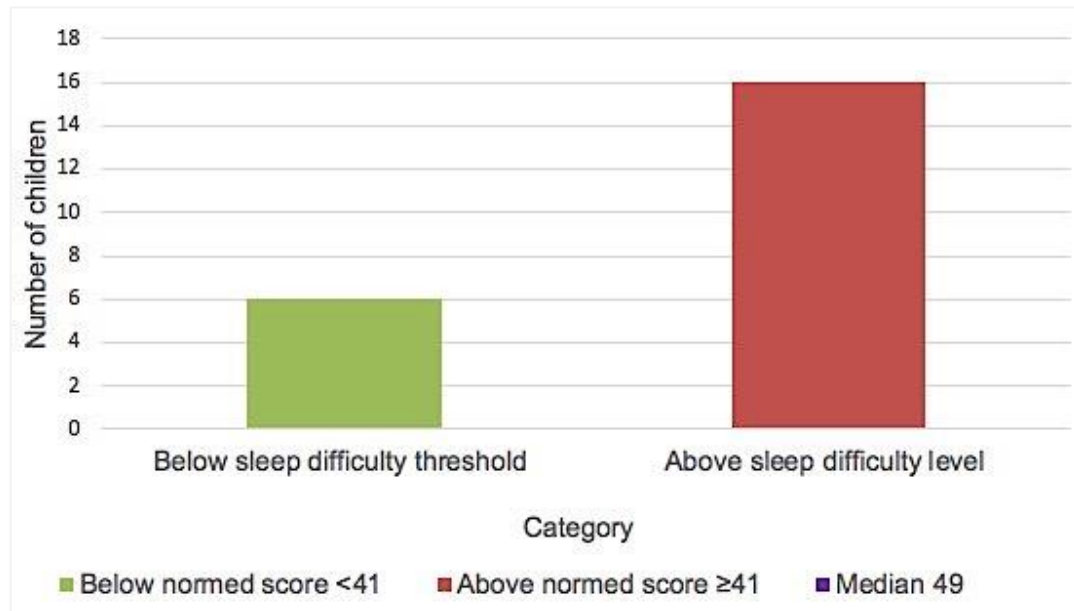


Figure 13. The prevalence of children’s sleep difficulties (CSHQ).

CSHQ SUBSCALES

Table 11 presents the Spearman’s rho correlation matrix of the CSHQ subscale scores for all factors, where statistically significant associations are indicated.

Table 11

Summary of CSHQ subscale correlations

CSHQ subscale	1	2	3	4	5	6	7	8
1. Bedtime resistance	–							
2. Sleep-onset delay	.364	–						
3. Sleep duration	.471*	.516**	–					
4. Sleep anxiety	.610**	.128	.298	–				
5. Night wakings	-.094	.276	.352	-.201	–			
6. Parasomnias	.525**	.413	.392	.252	.262	–		
7. Sleep-disordered breathing	.298	.492*	.503*	.142	.670**	.190	–	
8. Daytime sleepiness	.304	.226	.149	.051	.132	.502*	-.066	–

*Correlation is significant at the .05 level (Two-tailed test). **Correlation is significant at the .01 level (Two-tailed test). n=22.

Moderate positive associations. Table 11 indicates some significant moderate positive associations:

- Greater bedtime behaviour difficulties were associated with greater difficulties with sleep anxiety ($p=.003$), and parasomnias ($p=.012$);
- An increase in sleep-onset delay were associated with increased difficulties with sleep duration ($p=.014$);
- An increase in sleep duration difficulties were associated with greater difficulty with sleep-disordered breathing ($p=.017$);
- Greater difficulties with sleep-disordered breathing were significantly associated with greater difficulties with night wakings ($p=.001$); and
- Greater difficulties with parasomnias were moderately and significantly associated with greater difficulties with daytime tiredness ($p=.017$).

Small positive associations. Table 11 indicates that there were some small positive:

- Greater bedtime resistance difficulties were associated with greater difficulties with sleep duration ($p=.027$); and
- Greater difficulties with sleep-onset delay were associated with greater difficulties with sleep-disordered breathing ($p=.020$).

Non-significant associations. Table 11 indicates some non-significant associations between:

- Bedtime resistance and sleep-onset delay ($p=.096$), night wakings ($p=.677$), sleep-disordered breathing ($p=.178$), and daytime sleepiness ($p=.169$);
- Sleep-onset delay and sleep anxiety ($p=.569$), night wakings ($p=.214$), daytime sleepiness ($p=.312$), and parasomnias ($p=.569$);
- Sleep duration and sleep anxiety ($p=.569$), night wakings ($p=.214$), parasomnias ($p=.056$), and daytime sleepiness ($p=.312$);
- Sleep anxiety and night wakings ($p=.359$), parasomnias ($p=.257$), sleep-disordered breathing ($p=.529$), and daytime sleepiness ($p=.821$);
- Night wakings and parasomnias ($p=.238$), and daytime sleepiness ($p=.558$); and
- Parasomnias and sleep-disordered breathing ($p=.398$), or between sleep-disordered breathing and daytime sleepiness ($p=.772$).

I compared the subscale mean scores in the current sample with the values from the normative sample to explore whether there were differences in sleep difficulty scores. Table 12 presents these findings and indicates the statistically significant differences between both groups of children. On average children in the current sample had greater difficulties in the areas of night wakings and sleep-disordered breathing; however, these differences were non-significant.

Table 12

Results of the One-sample t-test for CSHQ subscales

Variable	Current sample		Normative sample		95% CI ^c for Mean Difference	<i>t</i> ^d
	<i>M</i> ^a	<i>SD</i> ^b	<i>M</i> ^a	<i>SD</i> ^b		
Bedtime resistance	8.68	2.36	7.06	1.89	.58 to 2.67	3.23**
Sleep-onset delay	1.86	.83	1.25	.53	.24 to .98	3.45**
Sleep duration	5.14	1.94	3.41	.93	.87 to 2.58	4.19**
Sleep anxiety	5.77	1.95	4.89	1.45	.02 to 1.75	2.12*
Night wakings	3.68	1.39	3.51	.89	-.45 to .79	.58
Parasomnias	9.50	2.43	8.11	1.25	.31 to 2.47	.01**
Sleep-disordered breathing	3.55	1.26	3.24	.63	-.25 to .87	1.14
Daytime sleepiness	11.64	3.03	9.64	2.80	.87 to 3.49	3.46**

* Significant at the .05 level $p < .05$ (Two-tailed test). ** Significant at the .05 level $p < .01$ (Two-tailed test). $n=22$. $df= 21$. ^a Mean. ^b Standard deviation. ^c Confidence interval. ^d t-test statistic

Significant differences. Parent reports indicated some positive and significant differences between both groups of children (Table 12):

- In the current sample, children had greater difficulties with bedtime resistance than children in the normative sample ($p=.004$);
- Difficulties with sleep-onset delay (the time that it takes to fall asleep) were greater in the current sample of children when compared to the normative sample ($p=.002$);
- Sleep duration difficulties were greater in the current sample than in the normative sample ($p<.001$);
- In the current sample, sleep anxiety was greater than those provided by the normative sample ($p=.046$);
- Parents in the current sample reported that parasomnias were a greater area of difficulty amongst their children than was reported by parents in the normative sample ($p=.014$);

- Daytime sleepiness scores illustrated that there were greater daytime sleepiness difficulties in the current sample than those reported in the normative sample ($p=.002$).

Non-significant differences. No significant differences were found between the current sample or the normative sample for parent-reported night wakings ($p=.569$) or sleep-disordered breathing ($p=.269$).

I explored parent, teacher, and child responses to identify corresponding responses between the respondents for each child. I matched the categorical sleep difficulty ratings from children and teachers (Table 13), children and parents (Table 14), and teachers and parents (Table 15). Scores rated above the threshold are indicative of probable sleep difficulties.

Table 13

Child and teacher crosstabulation ratings

		Child		
Sleep difficulty		Below threshold	Above threshold	Total
Teacher	Below threshold	15	6	21
	Above threshold	1	0	1
	Total	16	6	22

Table 14

Child and parent crosstabulation ratings

		Child		
Sleep difficulty		Below threshold	Above threshold	Total
Parent	Below threshold	4	2	6
	Above threshold	12	4	16
	Total	16	6	22

Table 15

Parent and teacher crosstabulation ratings

		Parent		
Sleep difficulty		Below threshold	Above threshold	Total
Teacher	Below threshold	6	15	21
	Above threshold	0	1	1
	Total	6	16	22

Of the 22 children who took part in this phase, children and teachers agreed on a mutual sleep difficulty rating for 15 children (68%). Children and parents agreed that four out of 22 children (18%) were below the threshold indicating a sleep difficulty. In contrast, four out of 22 children (18%) had a probable sleep difficulty. Overall concordance on the appraisal of sleep difficulties for children and parents were found for eight out of 22 children (36%). Parents and teachers rated six out of 22 children (27%) below the threshold indicating a sleep difficulty and one child (5%) were rated with a probable sleep difficulty. Overall seven out of 22 children (32%) had the same sleep-difficulty rating put forward by both parent and teacher.

Spearman's rho correlations were conducted on the total scores for the TDSQ, SSR, and the CSHQ to assess the agreement between participants' ratings of

sleep difficulties. Table 16 shows that no significant relationships were found between child- and parent-rated sleep difficulties ($p=.471$), between teacher- and parent-rated sleep difficulties ($p=.354$), or between child- and teacher-rated sleep difficulties ($p=.266$). Overall, no relationships were found for the measurement of sleep difficulties between children, their parents, or teachers.

Table 16

Relationships between the total sleep difficulty measures

Total sleep difficulty	SSR score	TDSQ score	CSHQ score
SSR score (child)	–		
TDSQ score (teacher)	-.248	–	
CSHQ score (parent)	.162	.208	–

$n=22$

4.3. RQ TWO: WHAT EXTENT DO PARENTS, TEACHERS AND CHILDREN REPORT DAYTIME SLEEPINESS IN SPECIFIC SCHOOL-AGED CHILDREN?

Individual item analysis of responses to the question ‘do you feel sleepy during the day?’ (question 24 on the SSR) indicated that 18 out of 22 children (82%) sometimes or usually felt tired during the day (*Figure 14*). Out of 22 children, 10 children (45%) were below the threshold indicating a daytime tiredness sleep difficulty, and 12 children (55%) were rated with a probable daytime sleepiness difficulty (*Figure 15*).

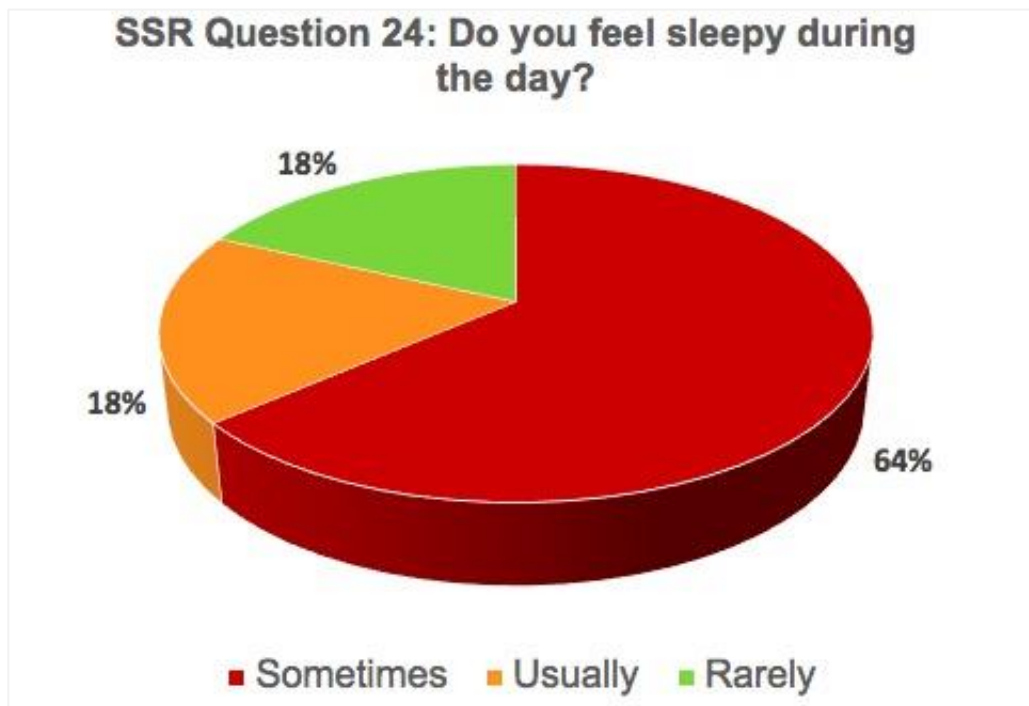


Figure 14. Children who report feeling sleepy.

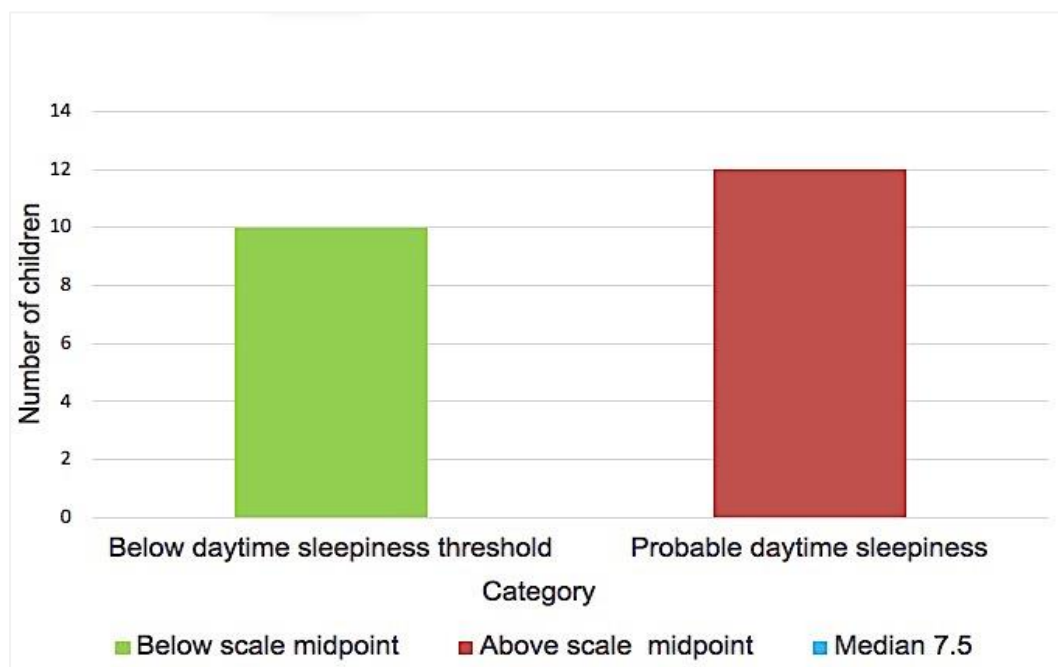


Figure 15. The prevalence of daytime sleepiness (SSR).

Figure 16 shows that teachers rated 21 out of 22 children (95%) as being below the threshold of a daytime sleepiness difficulty, and one child (5%) was rated with a probable daytime sleepiness difficulty. I used the CSHQ daytime sleepiness normed score provided by Owens, Spirito, and McGuinn (2000) to identify scores above (a probable daytime sleepiness difficulty) and below (below the threshold indicating a daytime sleepiness difficulty) the given threshold (≥ 41). Figure 17 demonstrates that parents rated six out of 22 children (27%) as being below the threshold of a daytime sleepiness difficulty, and 16 children (73%) were rated with a probable daytime sleepiness difficulty.

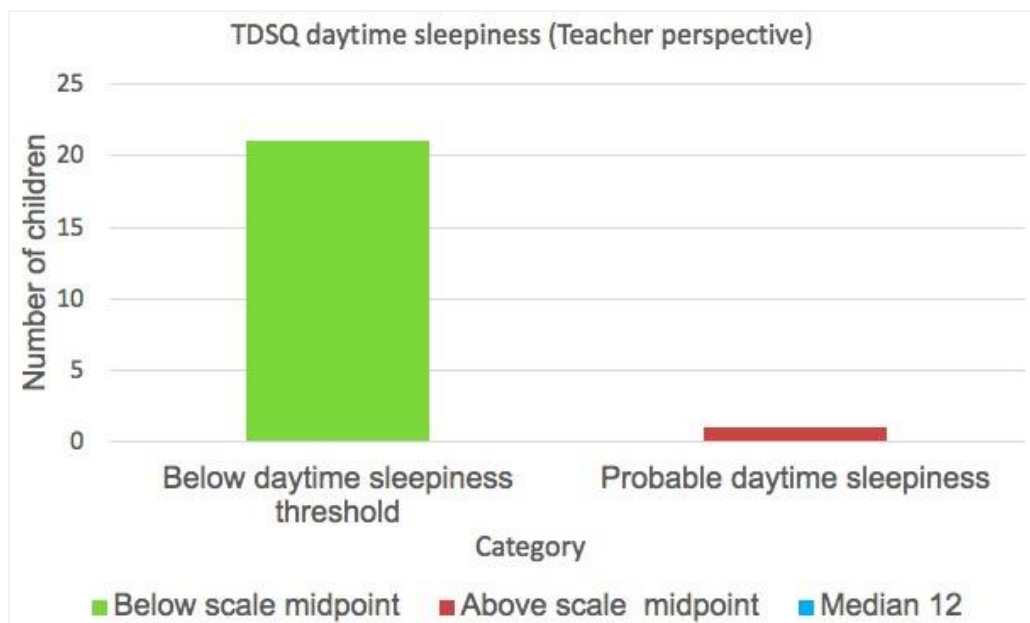


Figure 16. The prevalence of daytime sleepiness (TDSQ).

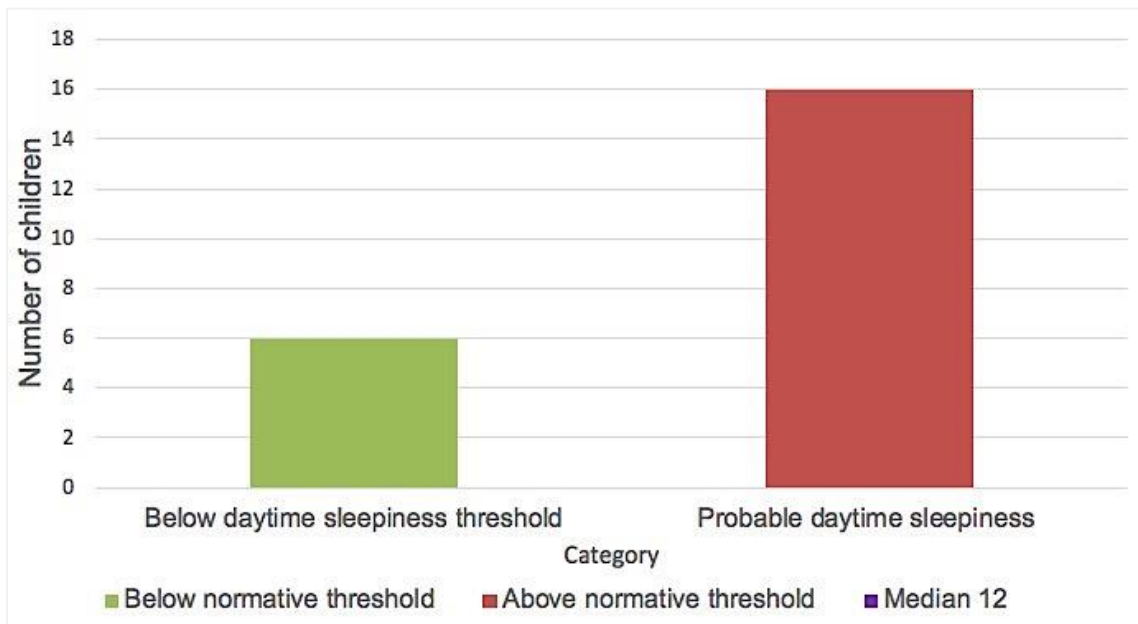


Figure 17. The prevalence of daytime sleepiness (CSHQ).

CORRELATIONS

Spearman's rho was used to investigate whether any relationships were present between the daytime sleepiness subscales of the SSR and the CSHQ and the complete TDSQ score (Table 17). Analysing the correlations between subscales and full-scales of children's daytime sleepiness in this way has been conducted in previous research (Amschler & McKenzie, 2005).

Table 17

Correlations of daytime sleepiness measures

Daytime sleepiness	SSR daytime sleepiness	TDSQ daytime sleepiness	CSHQ daytime sleepiness
SSR (child) daytime sleepiness subscale	–		
TDSQ (teacher) daytime sleepiness scale	.076	–	
CSHQ (parent) daytime sleepiness subscale	.465*	.473*	–

*Correlation is significant at the .05 level. $n=22$.

Table 17 indicated some small and positive associations. There was a significant association between parent and child ratings ($p=.029$) and between parent and teacher ratings of daytime sleepiness ($p=.026$). Findings from parents indicated that children had greater difficulties with daytime sleepiness, which was associated with greater difficulties with daytime sleepiness according to children and teachers. No significant relationships were identified between the teacher and child ratings of daytime tiredness ($p=.738$).

4.4. RQ THREE: WHAT IS THE RELATIONSHIP BETWEEN SPECIFIC CHILDREN’S SLEEP, THEIR PSYCHOSOCIAL FUNCTIONING, AND THEIR ACADEMIC OUTCOMES?

This section firstly presents the descriptive statistics of the psychosocial measures (Table 18) and the academic measures (Table 19) to provide an overview of the data. Next, I present the findings of the Spearman’s rho analysis, which was used to investigate the relationship between children’s sleep, their psychosocial functioning, and their academic outcomes. A correlation matrix demonstrating the association between all variables is presented in blocks, with statistically significant associations reported first.

Analysis of children's psychosocial functioning was made using the children's Positive and Negative feelings questionnaire, and the total scores of the parent and teacher SDQs. To provide an overview of the psychosocial functioning of children in the current sample, I compared their parent and teacher SDQ scores with the normative scores provided by Meltzer, Gatward, Goodman, and Ford (2003). Meltzer, et al. obtained data from 4,801 teachers and 5,855 parents in a national survey of five to 11-year-old children. Table 20 highlights that children in the current sample had higher levels of psychosocial difficulties (SDQ) than children in the normative sample.

Table 18

Descriptive statistics for psychosocial functioning

	Child scores		Possible range	Current sample		Normative sample	
	Min	Max		M^a	SD^b	M^a	SD^b
Child							
Positive and negative feelings total	26	47	10 - 50	38.64	5.19	-	
Teacher SDQ							
SDQ: Total difficulties	2	22	0 - 40	11.41	5.82	6.7	5.9
Emotional problems	0	10	0 - 10	3.05	2.90	1.5	5.9
Conduct problems	0	6	0 - 10	1.91	1.80	0.9	1.6
Hyperactivity problems	0	8	0 - 10	3.64	2.11	3.0	2.8
Peer problems	0	5	0 - 10	2.73	1.67	1.4	1.8
Externalising	0	13	0 - 20	5.50	3.43	-	
Internalising	0	15	0 - 20	5.77	4.01	-	
Parent SDQ							
SDQ: Total difficulties	7	25	0 - 40	14.09	4.91	8.6	5.7
Emotional problems	0	8	0 - 10	3.82	2.22	1.9	2.0
Conduct problems	1	4	0 - 10	2.45	1.06	1.6	1.7
Hyperactivity problems	2	9	0 - 10	4.00	2.02	3.6	2.7
Peer problems	2	7	0 - 10	3.41	1.44	1.4	1.7
Externalising	3	12	0 - 20	6.45	2.60	-	
Internalising	2	13	0 - 20	7.23	2.96	-	

$n=22$. ^a Mean. ^b Standard deviation.

Table 19

Descriptive statistics for academic measures

ACADEMIC MEASURES	No. of items	Child scores		Possible range	Scale midpoint score	Median	<i>M</i>	<i>SD</i>
		Min	Max					
Child								
Academic progress total	1	4	14	3 - 15	9	11	10.91	2.37
Teacher								
Academic progress	1	1	4	1 - 5	3	3.5	3.14	.99
Attainment total	1	3	12	3 - 15	9	9	7.77	2.49

n=22

Table 20

Correlation Matrix between variables

		Measures of sleep			Measures of academic outcomes			Measures of psychological functioning						
BLOCK		A			B			C						
Variable		1	2	3	4	5	6	7	8	9	10	11	12	13
A	1. SSR score ^a	-												
	2. TDSQ score ^b	-.248	-											
	3. CSHQ score ^c	.162	.208	-										
B	4. Tacademic progress ^b	-.174	-.619**	-.204	-									
	5. Tacademic attainment ^b	.350	-.536*	.090	.646**	-								
	6. Child academic progress ^a	.276	-.456*	.299	.405	.591**	-							
C	7. TSDQ Total difficulty ^b	.139	.356	-.179	-.381	-.304	-.380	-						
	8. TSDQ Externalising ^b	.092	.123	-.237	-.203	-.228	-.399	.743**	-					
	9. TSDQ Internalising ^b	.121	.361	-.242	-.397	-.398	-.312	.754**	.551**	-				
	10. PSDQ Total difficulty ^c	.520*	.214	.449*	-.372	-.052	-.145	.594**	.417	.513*	-			
	11. PSDQ Externalising ^c	.365	.094	.224	-.246	-.135	-.089	.524*	.614**	.415	.664**	-		
	12. PSDQ Internalising ^c	.444*	.100	.378	-.230	.173	.034	.350	.029	.384	.771**	.140	-	
	13. Child well-being ^a	-.272	-.306	.268	.436*	.375	.184	-.049	.000	-.338	-.039	-.033	.010	-

n=22.

*Correlation is significant at the .05 level.

**Correlation is significant at the .01 level.

^a Child measure.

^b Teacher measure.

^c Parent measure

BLOCK A

Significant associations. Table 20 indicated some statistically significant and moderate associations:

Block AB. Sleep, and academic measures:

- Teacher-rated daytime sleepiness was significantly and negatively associated with teacher-rated academic progress ($p=.002$) and teacher-rated academic attainment ($p=.010$).
- Teacher-rated daytime sleepiness had a small, statistically significant, and negative association with child-rated academic progress ($p=.033$).

Block AC. Measures of sleep and psychosocial functioning:

- A moderate, positive, and significant association was indicated between child-rated sleep difficulties and parent-rated total difficulties ($p=.013$) and parent-rated internalising difficulties ($p=.038$).
- A small significant relationship was indicated between children's sleep difficulties rated by parents and parent-rated total difficulties ($p=.036$).

Non-significant associations. Table 20 indicated some non-significant associations between:

- Child-rated sleep difficulties and children's psychosocial functioning as reported by children ($p=.221$), and teachers ($p=.537$).
- Child-rated sleep difficulties and teacher-rated externalising difficulties ($p=.685$), teacher-rated internalising difficulties ($p=.590$), or parent-rated externalising difficulties ($p=.095$).

- Teacher-ratings of daytime sleepiness and children's psychosocial functioning as reported by teachers ($p=.103$), parents ($p=.339$), or children ($p=.166$).
- Teacher-rated sleep difficulties and teacher-rated externalising difficulties ($p=.584$), teacher-rated internalising difficulties ($p=.098$), parent-rated externalising difficulties ($p=.679$), or parent-rated internalising difficulties ($p=.657$).
- Parent-rated sleep difficulties and children's psychosocial functioning as rated by teachers ($p=.426$), children ($p=.228$), or children's externalising difficulties ($p=.316$) or internalising difficulties ($p=.083$) rated by parents.
- Parent-rated sleep difficulties and children's externalising difficulties ($p=.288$) or internalising difficulties ($p=.278$) reported by teachers.

Block AA. Sleep measures:

Non-significant associations. Table 20 indicated some non-significant associations between

- Child and parent appraisal of children's sleep difficulties ($p=.471$), or teacher and parent appraisal of children's sleep difficulties ($p=.354$).
- The child measure of sleep difficulties and the teacher-rated daytime sleepiness scale ($p=.266$).

Block AB. Sleep, and academic measures:

Non-significant associations. No statistically significant associations were found between:

- Child-rated sleep difficulties and teacher-rated academic progress ($p=.439$), teacher-rated academic attainment ($p=.110$), or child rated academic progress ($p=.213$).
- Parent-rated sleep difficulties and teacher-rated academic progress ($p=.362$), teacher-rated academic attainment ($p=.691$), and child-rated academic progress ($p=.176$).

BLOCK B

Significant associations. Table 20 indicated some statistically significant, positive and moderate associations:

Block BB. Academic measures:

There was a significant association between:

- Teacher-rated academic progress and teacher-rated academic attainment ($p=.001$).
- Teacher-rated academic attainment and child-rated academic progress ($p=.004$).

Non-significant associations. Table 20 indicated some non-significant associations between

- Teacher-rated academic progress or child-rated academic progress ($p=.062$).

Block BC: Academic outcomes and psychosocial functioning:

Significant associations. There was a small, positive, and significant association between:

- Teacher-rated academic progress and child-rated psychosocial functioning ($p=.042$).

Non-significant associations. No statistically significant associations were found between:

- Teacher-rated academic progress and teacher-rated total difficulties ($p=.080$), externalising difficulties ($p=.366$), and internalising difficulties ($p=.067$).

- Teacher-rated academic progress and parent-rated total difficulties ($p=.089$), externalising difficulties ($p=.271$), and internalising difficulties ($p=.303$).
- Teacher-rated academic attainment and teacher-rated total difficulties ($p=.169$), externalising difficulties ($p=.307$), and internalising difficulties ($p=.066$).
- Teacher-rated academic attainment and parent-rated total difficulties ($p=.819$), externalising difficulties ($p=.550$), internalising difficulties ($p=.442$), and child-rated psychosocial functioning ($p=.086$).
- Child-rated psychosocial functioning and teacher-rated total difficulties ($p=.081$), externalising difficulties ($p=.066$), and internalising difficulties ($p=.157$).
- Child-rated psychosocial functioning, academic progress and parent-rated total difficulties ($p=.521$), externalising difficulties ($p=.692$), internalising difficulties ($p=.882$), and child-rated psychosocial functioning ($p=.411$).

It is important to note that some non-significant correlations were approaching statistical significance ($p=.06$) and may have been affected by the small sample size (Bujang & Baharum, 2016).

Block BC was previously presented (p.57), and Block CC has been presented in Appendix 24 (p.338) as these blocks present correlations that are not directly related to the research question.

CHAPTER 5. PHASE ONE: DISCUSSION

5. INTRODUCTION

This chapter interprets and explores the findings of phase one that were presented in Chapter Four. To guide the discussion, I begin by exploring the findings regarding the research questions that were developed from the gaps in the literature. Findings will be linked to the existing literature

The purpose of this study was to contribute to the literature about children's sleep by exploring teacher, parent, and children's views. Specifically, it aimed to explore the relationship between primary school-aged children's sleep, their academic outcomes and psychosocial functioning.

5.1. RQ1. TO WHAT EXTENT DO PRIMARY SCHOOL-AGED CHILD PARTICIPANTS EXPERIENCE DIFFICULTIES WITH THEIR SLEEP ACCORDING TO PARENTS, TEACHERS AND CHILDREN?

The first research question explored child, teacher, and parent views about children's sleep. Of the 22 children in the study, 14 children (64%) and eight children (36%) reported having sleep-behaviour and bedtime behaviour difficulties. Fourteen out of 22 children (64%) reported sometimes or usually sleeping too much, which contrasts with the findings put forward by Amschler and McKenzie (2005) who reported that 63.8% of children reported sometimes or usually sleeping too little. Fourteen out of 22 children (64%) reported having a sleep difficulty and, 13 children (59%) reported that they did not like to go to sleep. These proportions of the sample were higher than those found by Amschler and McKenzie (2005) where 91 out of 260 children (35%) reported having trouble sleeping, and 107 children (41%) reported that they did not like to go to sleep.

Amschler and McKenzie's (2005) study adopted a convenience sample, whereas the current study used a self-selection sampling method. The self-

selection method may have inflated the prevalence of sleep difficulties found in the current study, perhaps due to greater personal interest or personal motivations to participate in the study due to an identified sleep difficulty. For example, a parent who believes their child has a sleep difficulty may be more inclined to participate due to the research having relevance to their current experiences. Differences could also be due to the younger age-group used in the current research (six to 11 years), in contrast to the children in Amschler and McKenzie's (2005) study (10 to 11 years), which may indicate the presence of sleep difficulties in primary school-aged children of all ages.

Another explanation for the discrepancy between the current findings and those obtained by Amschler and McKenzie (2005) could be due to the pupils in the Amschler and McKenzie's study being from rural schools. Sleep difficulties have been linked to socioeconomic status (Buckhalt, El-Sheikh, & Keller, 2007), which cannot be ruled out in this comparison. An alternative perspective to explain the discrepancy relates to the self-selection of participants to the current study.

Previous research has found that parents or children report that between 11% to 69% of school-aged children have experienced sleep difficulties (Drake et al., 2003; Galland & Mitchell, 2010; Stein, Mendelsohn, Obermeyer, Amromin & Benca, 2001). The current study agrees with these findings as out of 22 children- teachers, children, and parents rated between one child (5%), six children (27%) and 16 children (73%) with a sleep difficulty respectively. Differences in the prevalence of sleep difficulties among school-aged children may then depend greatly upon the respondent (parent, teacher, child), with a vast difference between the proportion of children identified with probable sleep difficulties by parents and teachers.

The discrepancy between participant report is commonly reported in studies of difficulty in psychological developmental (Achenbach et al., 1987), though, the findings indicate that relying on information from one respondent alone may be problematic. Differences in respondent responses may be related to various factors. Differences include individual differences (Könen, Dirk, and

Schmiedek's, 2015), context-specific factors (Aronen et al., 2000; Clinical Innovation & Governance, 2016) or that children's perceptions of sleep difficulty differs from parent report (Gregory, Willis, Wiggs, Harvey, & the STEPS team, 2008). The lack of an association between parent, teacher, and child reports could suggest that people within these groups (or the measures used) are assessing different aspects of sleep difficulty.

Differences between parent and child reports could also relate to the level of individual awareness or understanding about the expression of daytime sleepiness (Palmer & Alfano, 2017). Dependence on information gathering about sleep from one respondent may then not consider the presentation of context-specific sleep difficulties and perceptions (Aronen et al., 2000). Likewise, this may not consider individual experience and perceptions of that experience. Investigating such areas using targeted and explorative questions lend itself to the opportunity that EPs have in gaining views from those around the child.

Of all participants, parents in the current study reported the highest incidence of sleep difficulty for children of all of the participants. This finding contrasts with Paavonen et al.'s (2000) statement that sleeping difficulties may go unnoticed by parents. Instead, the findings suggest that what may be lacking is for some parents, to know what steps could be taken to help to improve the identified difficulties. Failing to act upon what may start off as a non-clinical presentation of sleep difficulties, may lead to a reactive, rather than a proactive response to helping children to overcome sleep concerns.

Sadeh, Raviv, and Gruber (2000) suggested that children are particularly sensitive to environmental stress, which may trigger greater instances of anxiety and hypervigilance among children. Parents in the current study reported bedtime resistance, sleep-onset delay, sleep duration, sleep anxiety, parasomnias and daytime sleepiness were areas of greater difficulty for children in comparison to the findings of the control group (normative) sample reported by Owens, Spirito, and McGuinn (2000).

The difference in findings may relate to generational changes in the current population as Zimmerman (2008) and, Blair et al. (2012) suggested that children's sleep duration trends have typically declined over time. The current findings support this as there were greater difficulties in children's overall sleep 18 years after Owens, Spirito, and McGuinn's (2000) study. As societies evolve, there may be factors such as technology (Lemola et al., 2011) or changes in family behaviour (Cassoff, Knäuper, Michaelson, & Gruber, 2013) that have changed during the past 18 years. Such changes may have a different impact on children's sleep than was observed almost two decades ago.

As sleep duration difficulties increased in the current study, there was an increase in bedtime resistance, sleep-onset delay and sleep-disordered breathing. Higher levels of sleep-disordered breathing were also related to greater problems with the time it took for children to fall asleep. Furthermore, parent-reports indicated that higher levels of sleep anxiety and greater difficulties with parasomnias was related to bedtime behaviour difficulties. These findings support Paavonen et al.'s (2000) report that some children may experience co-occurring sleep difficulties. The occurrence of more than one difficulty presents the opportunity for parents to recognise one or more sleep-related difficulty in their children.

Children reported that eight children (36%) and six out of 22 children (27%) experienced probable sleep difficulties associated with bedtime and with their sleep behaviour. Such areas of difficulty may be more easily identified by parents and children. In the current study, children and parents concurred on the category of sleep difficulty for eight out of 22 children (36%). Parents and teachers shared corresponding views about seven out of 22 children (32%). However, children and teachers did not agree on the occurrence of a probable sleep difficulty for any children. In contrast, children and teachers demonstrated greater concord in their identification of children who were below the threshold of a sleep difficulty. Fifteen out of 22 children (68%) were identified below the threshold of a sleep difficulty by both teachers and children.

Concordance rates in the current sample suggest that children and parents may be more aligned in their perspectives to identify the presence of children's sleep difficulties. This finding differs to those put forward by Owens, Spirito, McGuinn, and Nobile (2000) who found greater agreement about children's sleep difficulties between children and teachers (45.5%), and parents and teachers (36.1%) than parents and children (26.5). While the methods of checking for participant agreement between studies may differ, the outcomes demonstrate differences, which may relate to alternative perspectives, understanding, and awareness.

Interestingly, as previously presented, 14 of the children (64%) reported that they have trouble sleeping, however, the number of children indicated by parent, teacher and child questionnaire data as having probable sleeping difficulties was 16, one, and six respectively. Children's perceptions that they had a sleep difficulty were more in line with parent report than by the outcomes indicated in the SSR survey. Such a discrepancy may require attention from adults around the child as survey outcomes may not mitigate the child's lived experience.

Differences in perspective may relate to McDowall et al.'s (2017) claim that children's sleep behaviours may be perceived and defined differently by different parents. Owens, Maxim, Nobile, McGuinn, and Msall (2000) suggested this discrepancy may be between parents and their children. However, the current findings indicate that this difference in perception of sleep difficulties may also extend to teachers and children. Aronen et al. (2000) stated that teachers are well placed to identify children with sleep difficulties, however, the outcomes in the current study challenge this finding. Teachers identified one child out of 22 children (7%) with a probable sleep difficulty. This rate contrasted with parents' and children's self-reported views of the presence of a sleep difficulty as noted above.

I did not find an association between all participant reports of children's sleep difficulties. In contrast, Owens, Spirito, McGuinn, and Nobile (2000), found a small association between the teacher and parent ratings of sleep difficulty. The

current findings suggest that parents and children and parents and teachers may have relatively independent views about children's sleep, which may benefit from further exploration. I wonder if the differences in views is indicative of Palmer and Alfano's (2017) suggestion that sleep as a phenomenon is often misunderstood. However, it is important to highlight that as the current study was non-experimental, the cause of such difficulties could be related to other factors.

Fourteen out of 22 children (64%) reported that they sometimes or usually stayed up late when their parents thought they were asleep. Additionally, 18 out of 22 children (82%) reported sometimes or usually waking up at night when their parents thought they were asleep. Parents may, therefore, lack awareness of some aspect of their primary school-aged child's sleep. Holley, Hill, and Stevenson (2011) highlight that parents are not always fully aware of their children's sleep habits as they are not always able to directly observe or be aware of children's sleep-related behaviours and to some degree parents may rely on children informing them of any concerns.

Holley et al.'s (2011) findings had relevance for teachers in the current study, as teachers' low-level of identification of children with a sleep difficulty did not correspond with parent or child views. Teachers have the opportunity to identify symptoms of sleep-loss in the classroom, which may help in the wider investigation of difficulties. However, low awareness of how these symptoms may present for individual children may have been one-factor influencing teachers' assessments of children's sleep.

Despite parent' reports indicating sleep difficulties being present in 16 out of 22 children (73%) in the current study, only four out of 21 parents (19%) reported that they had sought professional support for their child's sleep. This finding supports Mindell and Owens' (2003) findings that there may be some school-aged children who have sleep difficulties that have been unaddressed by parents. Blair et al. (2012) concluded that parents might not be reporting children's sleep difficulties to professionals. However, in contrast to Mindell and

Owens' perspective, it may be that parents are attempting to resolve their children's sleep difficulties directly before they involve professionals.

5.2. RQ TWO: TO WHAT EXTENT DO PARENTS, TEACHERS AND CHILDREN REPORT DAYTIME SLEEPINESS IN SPECIFIC SCHOOL-AGED CHILDREN?

Of the 22 children who rated feeling sleepy during the day, 14 children (64%) indicated feeling tired two to four times per week, and four children (18%) felt tired five to seven times per week. This finding is comparable to Amschler and McKenzie's (2005) findings where 59% and 24% of children respectively felt tired during the day. Similarly, Drake et al. (2003) found that 54% of children reported feeling sleepy during the day, which highlights that this may be an area that warrants greater attention within the children's workforce.

Twelve out of 22 children (55%) in contrast to 14 out of 22 parents (64%) perceived that children experienced behaviours associated with probable daytime sleepiness difficulties. Findings from teachers indicated that one in 22 children (5%) demonstrated a probable daytime sleepiness difficulty. The latter levels of daytime sleepiness in the current study complement Owens, Spirito, McGuinn and Nobile's (2000) findings where 10% of the sample were reported (by parents and teachers) to experience daytime sleepiness.

I found that greater daytime sleepiness in children (identified from parent-report) was associated with greater difficulties in daytime tiredness rated by children and teachers. However, such an association was not found by Amschler and McKenzie (2005). The differences in findings between the current study and Amschler and McKenzie's findings may suggest contrasting views or constructs present between some parents, children, and teachers. Aronen, Paavonen, Fjallberg, Soininen, and Torronen (2000) suggested that sleep-related behaviour may present differently in different contexts, this may, therefore, have an impact on the assessment of sleep by parents and teachers. Such differences may contribute to one-third of sleep difficulties going unnoticed by the adults around the child (Paavonen et al., 2000).

Parent-reported daytime sleepiness scores (CSHQ) in the current sample were pointedly greater in comparison with the normative sample indicating a greater level of daytime sleepiness. Owens, Spirito, McGuinn, and Nobile (2000) stated that this difficulty relates to a range of interrelating and interpersonal factors such as developmental stage, personal motivation, the sleeping environment, and the impact of different levels of sensitivity to lack of sleep on different children. The comparison between children in the current study and the children in Owens et al.'s study suggests that difficulties with daytime sleepiness may be getting more prevalent for some children over time. However, it is important to reiterate that the cause of such difficulties could be related to factors that were not assessed.

5.3. RQ THREE: WHAT ARE THE RELATIONSHIPS BETWEEN SPECIFIC CHILDREN'S SLEEP, THEIR PSYCHOSOCIAL FUNCTIONING, AND THEIR ACADEMIC OUTCOMES?

The importance of supporting children's psychosocial functioning was reinforced as children with greater psychosocial functioning were appraised by their teachers as making greater academic progress. Buckhalt, El-Sheikh, Keller, and Kelly (2009) found that poor sleep is associated with inferior academic grades when assessed by teachers, while Könen, Dirk, and Schmiedek (2015) concluded that children need to be well rested to meet their academic demands. In the current study, children who were categorised by their teachers as having a probable daytime sleepiness difficulty were categorised by teachers as having lower academic attainment, and by teachers and children as making poor academic progress.

The association between teacher assessment of children's academic outcomes and daytime tiredness shows congruency with Dewald et al.'s (2010) findings that lower levels of daytime sleepiness were associated with better academic performance. In contrast, Kim et al. (2011) concluded that children with sleep-disordered breathing (and higher levels of daytime sleepiness due to sleep

disturbance) are not associated with poorer academic outcomes. However, a cultural difference may have had an impact on these findings, as Kim et al. reported that it is common for Korean pupils to undertake private tuition at the end of a school day. Such factors may be less likely for pupils living in areas of high deprivation as in the Local Authority studied. Socioeconomic status has been identified as a factor in child's ability to attain an adequate amount of sleep (Buckhalt, El-Sheikh & Keller, 2007).

I found that children who reported greater sleep difficulties had greater psychosocial functioning difficulties reported by parents. In addition, children who reported experiencing greater difficulties with their sleep had higher parent-rated internalisation difficulties (emotional and peer problems). Parents who rated their children as having greater psychosocial difficulties were also rated by their parents as having greater sleep difficulties. As discussed in question one and two, parents and children rated children as having higher levels of sleep difficulty than teachers in the current study. Teachers identified one child as having a probable-level of daytime tiredness; therefore, the lack of associations is unsurprising.

Overall, the findings indicate that greater sleep-related difficulties reported by parents and children are related to parent reports of internalising difficulties such as emotional difficulties (Benedetti et al., 2007; Palmer & Alfano, 2017) and peer problems (Kim, Lee, Lee, Hong, & Cho, 2011). However, Goodnight et al. (2007) and Holley, Hill, and Stevenson (2011) found that externalising difficulties such as poor conduct was related to sleep-related difficulties. The lack of an association with externalising behaviours in the current study is therefore unexpected. Such differences may relate to a number of factors, including personality and individual or developmental differences.

The current findings suggest that emotional difficulties and peer frictions in children may be a key indicator for adults around to child to keep in mind when exploring factors that may impact or be impacted by children's sleep. However, Paavonen, Porkka-Heiskanen and Lahikainen (2009) found similar findings; parent-reported sleeping difficulties were related with internalising difficulties

and the total SDQ difficulty score. However, Paavonen et al. also found the same relationships for teacher-rated sleep difficulties and an association for both parents and teacher-reported sleep difficulties with children's externalising difficulties.

An association between sleep difficulties rated by parents and teachers and externalising difficulties may have been found in Paavonen et al.'s (2009) study as their participants involved children aged five to six. This age group was at and below the younger age group in the current study, which Flavell, Flavell, and Green (2001) and Davis, Levine, and Lench (2010) suggested is an age with less understanding of thoughts and feelings. The differences described above in the relationships between parent and teacher-rated sleep and children's psychosocial functioning in the current study have also been observed by Paavonen et al. (2009). These differences may be related to contextual factors that may differ between home and school and be more readily identifiable or problematic in different contexts (Aronen et al., 2000).

The complexity of the relationship between sleep and psychosocial functioning is likely to be a relevant factor. For example, sleep has been found to be linked to emotional regulation (Vriend et al., 2013), conduct (Holley, Hill, & Stevenson, 2011), and peer relationships (Kim et al., 2011). Kidwell (2016) and Palmer and Alfano (2017) argued that sleep has a bi-directional relationship with emotion; sleep has been found to activate the same brain regions found in emotion and executive control behaviours. However, other researchers have found sleep deprivation to have an antidepressant response (Benedetti et al., 2007; Wiraz-Justice & Van den Hoofdakker, 1999). The differences observed between the current study and previous studies may also relate to the complex nature of psychosocial functioning and the level of sensitivity individual children may have to loss of sleep (Owens, Spirito, McGuinn, & Nobile, 2000; Tsang, Wong, & Lo, 2012).

CHAPTER 6. PHASE TWO: FINDINGS

6. INTRODUCTION

Phase two of the study aimed to explore the impact of a Sleep Club intervention on primary school-aged children's sleep behaviours and sleep knowledge. The Sleep Club was delivered using a time-series approach. The findings obtained at each stage are detailed in Tables 21 to 23.

This chapter presents the findings obtained from the procedures described in Chapter Three. I briefly summarise the data analysis procedures before presenting the descriptive statistics of the pre and post-intervention measures. The findings from the quantitative and qualitative analysis are explored in greater detail with the corresponding research question. To conclude, a summary of the findings is put forward ahead of Chapter Six, which discusses the findings of phase one in relation to the literature.

6.1. PHASE TWO PARTICIPANTS

Demographic data that corresponds to phase two can be found in Appendix 25 (p.340). Data were mostly obtained from 27 participants (parents/carers, n= 13; children, n= 14). A further two participants (teaching assistants) provided evaluative feedback on the Sleep Club sessions that they had attended throughout the six Sleep Club sessions. To provide an overview of the data the descriptive statistics have been presented with the relevant research question. Further descriptive data has been presented in Appendices 26 and 27 (p.342 and p.346), for children and parents respectively. Sleep diary descriptive data has been presented in Appendix 28 (p.351).

Table 21

The data collection time series matrix for children's data

Collection period					Time 1	Time 2	Time 3	Time 4	Time 5	Time 6	
Research focus:					Pre-intervention data (obtained from phase one)	Start of the Sleep Club intervention	Six week Sleep Club intervention	End of the Sleep Club intervention	Four weeks post-intervention	Eight weeks post-intervention	
Teaching Assistant (TA) data (Quantitative)								TA Evaluation			
School No.	Child data (Quantitative)				- The SSR	- Quiz /100%	Field notes (Reflections on the intervention sessions, and observations and comments noted)	Quiz /100%	Eval.^ /10	- The SSR	- The SSR
	Child	Gender	Age	Clinical?	October 2017	November 2017		December 2017	January 2018	February 2018	
1	F	M	11	Yes	50	50%		69%	9	40	31
	G	M	10	Parent suspected	45	31%		38%	10	46	45
	I	M	10	-	45	50%		69%	9	41	-
	J	F	10	-	37	44%		44%	9.5	28	29
	K	M	8	-	47	19%		69%	9	42	44
	S	F	7	-	45	44%		50%	10	36	34
					November 2017	January 2018		March 2018		March 2018	April 2018
2	L	M	6	Yes	53	31%		81%	10	51	46
	M	M	8	-	34	44%	94%	5	34	30	
	N	M	8	-	37	69%	75%	10	39	33	
					December 2017	January 2018	March 2018		March 2018	April 2018	
3	E	M	6	-	46	69%	31%	10	45	44	
	O	M	6	Yes	39	19%	19%	10	33	29	
					December 2017	January 2018	March 2018		March 2018	April 2018	
4	Q	F	9	Parent suspected	42	44%	75%	10	34	-	
	R	M	10	Yes	40	19%	94%	10	40	-	
	*	M	10	-	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded	
					November 2017	January 2018	March 2018		March 2018	April 2018	
5	D	M	8	Yes	45	38%	69%	10	30	38	

- M = male (N= 12), F = female (N= 3).
- *Child was excluded from school after week one of the Sleep Club.
- ^ Eval. = Child evaluation. Scores do not correspond with individual children due to anonymity. 1) Not very good → 10) very good.

- = a missing score
- + Reported not to meet the full criteria for an Autism diagnosis.

Table 22

Parent data: Sleep diaries and CSHQ

Sleep diary and CSHQ data

Collection period	Time 1 Pre-intervention	Time 2 Pre-intervention		Time 3 Intervention									
Research focus:	Pre-intervention data (obtained from phase one)	Start of the Sleep Club intervention		Sleep Club intervention									
Parent data (Quantitative) /Child	Child Sleep Habits Questionnaire (CSHQ) score	- One week sleep diary		- Week two of sleep diary data		- Week three of sleep diary data		- Week four of sleep diary data		-Week five of sleep diary data		-Week six of sleep diary data	
		Mean mins to fall asleep	Mean mins asleep	Mean mins to fall asleep	Mean mins to fall asleep	Mean mins to fall asleep	Mean mins asleep	Mean mins to fall asleep	Mean mins asleep	Mean mins to fall asleep	Mean mins asleep	Mean mins to fall asleep	Mean mins asleep
F	47	25	583	34	579	28	542	34	572	24	578	14	597
G	51	20	625	26	603	24	559	14	591	-	-	-	-
I	63	20	578	15	757	7	790	14	541	6	515	4	570
J	44	21	563	16	570	24	540	-	-	-	-	-	-
K	51	64	569	36	575	34	590	31	593	39	584	11	547
S	44	11	670	7	679	7	666	7	641	11	666	5	461
L	61	-	-	-	-	5	674	-	-	-	-	-	-
M	38	65	628	-	-	-	-	-	-	-	-	30	680
N	52	16	597	10	619	9	607	14	614	13	596	9	604
E	51	-	-	-	-	-	-	-	-	-	-	-	-
O	53	15	648	18	631	19	635	13	631	16	630	-	-
Q	35	-	-	-	-	-	-	-	-	-	-	-	-
R	55	279	161	-	-	-	-	-	-	-	-	-	-
D	56	135	594	83	580	79	526	169	526	69	691	77	525
Parent data (Qualitative)	Telephone interviews (2x 30 minute or 1x 60 minute) / (Field notes taken)												

- All sleep diary time in minutes (mins)
- = Missing data.

Table 23

Post-intervention parent data

Sleep diary and CSHQ data continued

Collection period	End of the Sleep Club	FOR EASE OF COMPARISON: Pre intervention Week 1 Child Sleep Habits Questionnaire (CSHQ) score	Time 4 Post-Intervention			Time 5 Post-Intervention					Throughout
Research focus:			Four weeks post-intervention			Eight weeks post-intervention					
Parent data (Quantitative) /Child			Child Sleep Habits Questionnaire (CSHQ) score	- One-week sleep diary		Child Sleep Habits Questionnaire (CSHQ) score	- One-week sleep diary		Parent (process) evaluation		
	Mean mins to fall asleep	Mean mins asleep		Mean mins to fall asleep	Mean mins asleep		Impact on Sleep behaviour /10	Impact on Sleep knowledge /10			
F	Dec 17	47	39	27	606	40	23	599	7	7	NO
G		51	46	21	571	-	-	-	3	8	NO
I		63	60	6	-	63	-	-	2	3	NO
J		44	41	-	-	-	-	-	7	8	NO
K		51	39	31	603	41	24	575	4	5	YES 30 mins
S		44	31	15	668	32	-	-	9	9	NO
L	Mar 18	61	58	-	-	61	17	-	5	5	NO
M		38	43	28	617	35	28	685	6	8	NO
N		52	48	16	594	49	14	626	2	3	NO
E		51	46	-	-	-	-	-	-	-	NO
O		53	47	16	631	37	24	622	-	-	YES 45 mins
Q		35	-	-	-	-	-	-	-	-	NO
R		55	-	-	-	-	-	-	-	-	NO
D		56	-	-	-	65	138	544	-	-	NO
Parent data (Qualitative)	Telephone interviews (2x 30 minute or 1x 60 minute)/ (Field notes taken)										

- ☐ Mins = time in minutes
- ☐ - = Missing data.

6.2. RQ FOUR: WHAT ARE THE REPORTED DIFFERENCES IN THE SLEEP BEHAVIOUR OF SPECIFIC CHILDREN BETWEEN THE PRE- AND POST-INTERVENTION PERIODS?

I compared the findings from the SSR (child) and CSHQ (parent) questionnaires to explore children's sleep over time. Comparisons were made between the pre-intervention period and at the four-week follow-up period (Table 24). In Table 21, the 'no. of items' column refers to the number of survey items that are in each scale. The child score (minimum, maximum) column presents the findings of the scales from the respective participant. The possible score column (highest, lowest) indicates the highest and lowest possible scores that can be achieved on the scale and subscales where present.

Table 24

Pre- and post-intervention SSR and CSHQ total scores

SSR	TIME 1	N	No. of items	Child scores		Possible range	M	SD	Median
				Min	Max				
		14	23	34	53	23 - 69	43.21	5.32	45
TIME 5									
		14	23	28	51	23 - 69	38.50	6.43	39.5
TIME 6									
		11	23	29	46	23 - 69	36.64	6.93	34
CSHQ	TIME 1	N	No. of items	Child scores		Possible range	Mean	SD	Median
				Min	Max				
		14	33	35	63	31 - 97	50.07	7.93	51
TIME 5									
		11	33	34	60	31 - 97	45.36	7.95	46
TIME 6									
		9	33	32	65	31 - 97	47	12.91	41

Valid n (listwise) =7

Pre- and post-intervention comparisons

Changes in the overall categorisation of sleep difficulties of all children at each stage is presented in *Figure 18* for children and in *Figure 19* for parents.

I conducted a Wilcoxon Signed Ranks test to explore the median test score differences between the pre-intervention (time one) and the four- and eight-weeks' post-intervention scores (time five and six respectively). Whitley and Ball (2002) suggested the Wilcoxon Signed Ranks Test can be conducted on non-parametric data with a small sample.

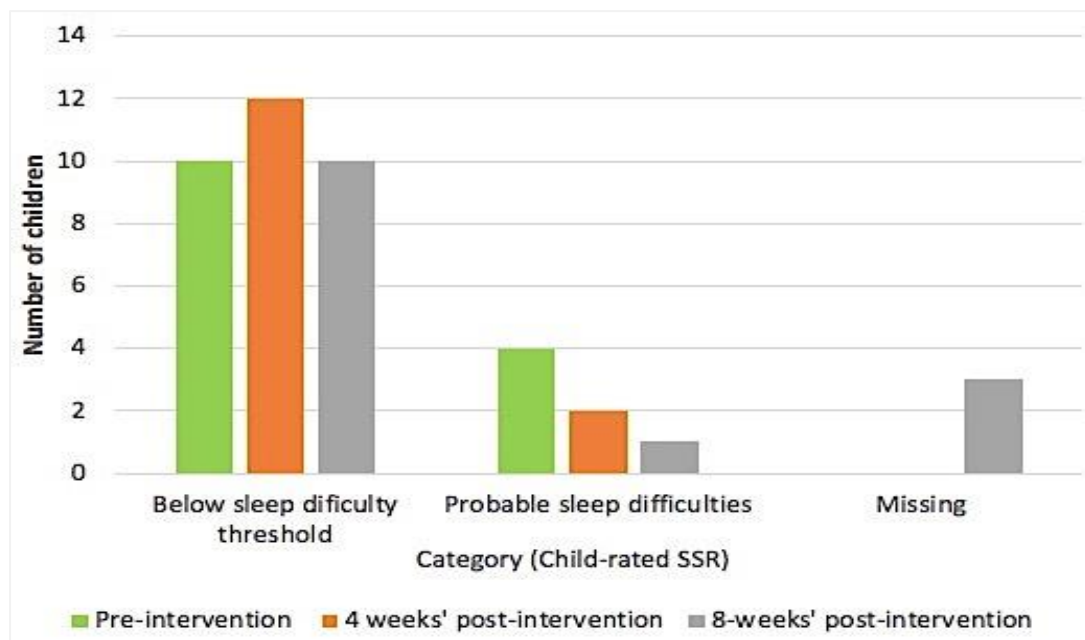


Figure 18. SSR sleep difficulty pre- and post-intervention.

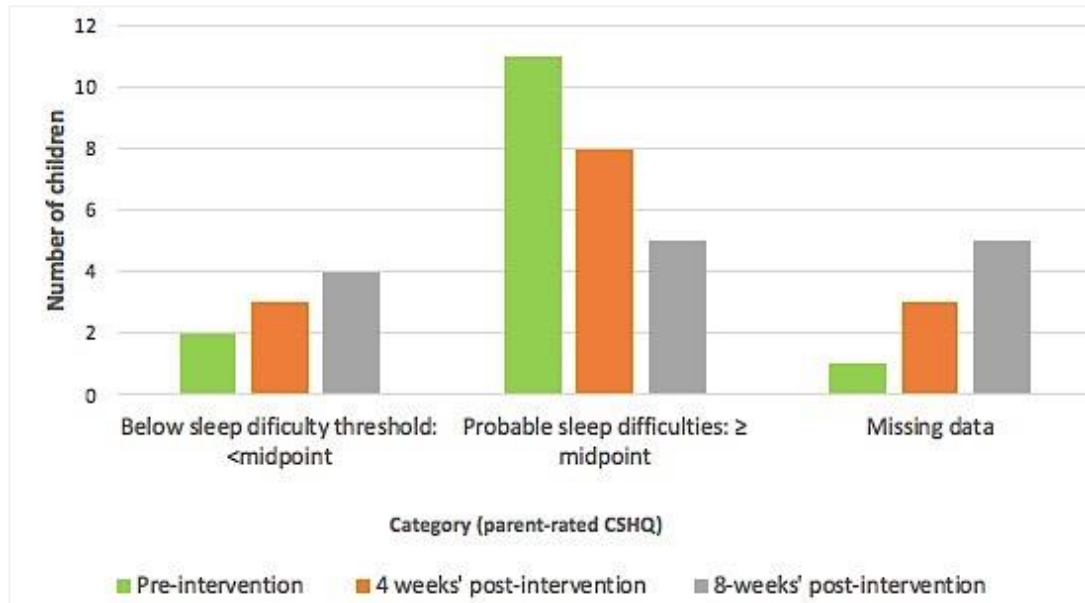


Figure 19. CSHQ sleep difficulty pre- and post-intervention.

A Wilcoxon Signed Ranks Test indicated a significant decrease between the pre-intervention child-rated (SSR) scores, $Mdn = 45$, and the SSR scores four-weeks' post-intervention, $Mdn = 39.5$, ($z = -2.67$, $p = .005$, two-tailed) and eight-weeks' post-intervention, $Mdn = 34$, ($z = -2.81$, $p = .002$, two-tailed). A significant decrease was observed for parent-rated (CSHQ) scores between the pre- ($Mdn = 51$) and four-week post-intervention scores, $Mdn = 46$, ($z = -2.73$, $p = .005$, two-tailed). I compared children's pre-intervention ($Mdn = 51$) and the eight-week post-intervention ($Mdn = 41$) sleep difficulty scores reported by parents (CSHQ) and found a non-significant difference ($z = -1.69$, $p = .090$, two-tailed). Reports from parents and children suggested that children experienced fewer sleep-related difficulties at the four-week post-intervention stage when compared to the pre-intervention stage. Children experienced fewer sleep-related difficulties eight-weeks' post-intervention when compared to their pre-intervention scores.

SLEEP-ONSET DELAY

CSHQ (parent)

Table 25 presents the comparison of the pre- and post-intervention CSHQ (parent) sleep-onset delay scores. Of the 11 respondents at the four-week post-intervention stage, six children (55%) experienced a decrease in difficulties with sleep-onset delay; four children (36%) maintained their level of difficulty, and one child (9%) had an increase in difficulties with sleep onset-delay. Nine sleep-onset difficulty responses were provided at the eight-week post-intervention period. Four out of nine children (44%) had a decrease in sleep-onset difficulties, and five out of nine children (56%) maintained their pre-intervention scores.

I compared children's pre-and post-intervention sleep onset-delay difficulty levels (*Figure 20*). There were more children below the threshold of a sleep-onset delay difficulty four-weeks' post-intervention when these scores were compared to their pre-intervention scores. The higher four-week post-intervention score decreased eight-weeks' post-intervention, however, overall, there were a larger number of children post-intervention that had fewer reported difficulties with sleep-onset delay. Children with a probable sleep-onset delay difficulty experienced a decrease in sleep-onset delay difficulties four- and eight-weeks' post-intervention. However, these comparisons require caution in interpretation due to three and five children having data missing data four- and eight-weeks' post-intervention, respectively.

Table 25

Pre- and post-intervention sleep-onset delay scores

CSHQ	Pre-intervention (T1)	4-weeks' post intervention (T5)	8-weeks' post intervention (T6)
N	14	11	9
Median	2	1	1
Interquartile range	1 – 3	1 – 2	1 – 2.5
Increased score	-	1	0
Same score	-	4	5
Decreased score	-	5	4

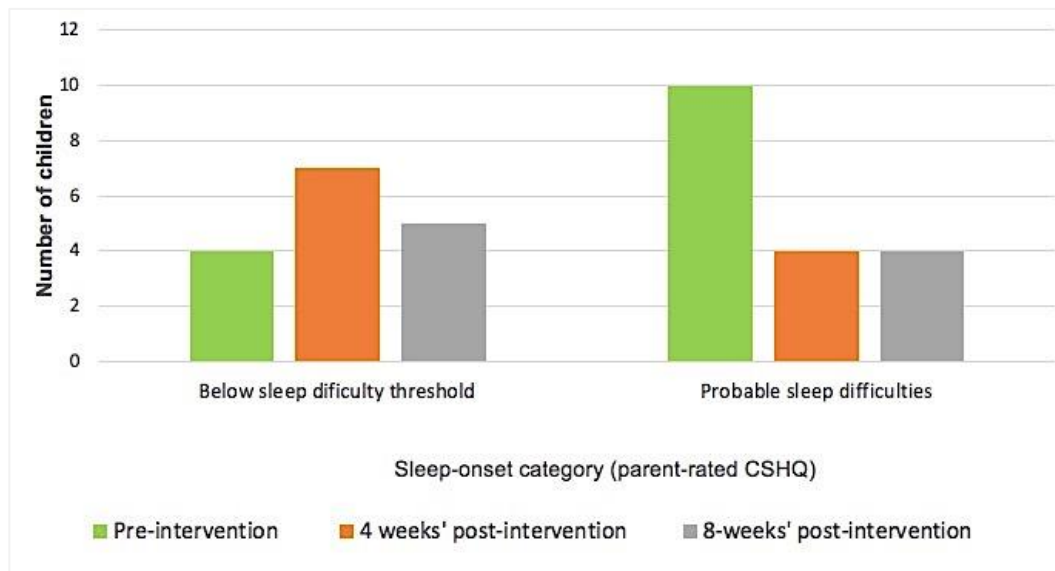


Figure 20. Sleep-onset delay scores for all children over time.

Sleep diary (parent)

Sleep-onset delay was measured with the sleep diaries; pre-intervention (time one), four-weeks' post-intervention (time five) and eight-weeks' post-intervention (time six). Due to the number of missing sleep diary data, a Wilcoxon Signed Ranks test was not conducted with any of the sleep diary data. Interpretation of the findings may require caution due to the number of missing data. Parents provided eight out of 14 sleep diaries (57%), which provided data four-weeks' post-intervention that could be compared to the pre-

intervention data. Parents provided six out of 14 sleep diaries (43%) at the eight-week post-intervention period that could be compared with the pre-intervention scores. Of the data received, three out of eight children (38%) and four out of six children (67%) had a decrease in the time that it took the children to fall asleep four- and eight-weeks' post-intervention respectively.

Table 26 presents the change scores between the pre-intervention scores and the four- and eight-week post-intervention scores. Gaylor, Burnham, Goolin-Jones, and Anders (2005) stated that it should take approximately 20 minutes to fall asleep (sleep-onset latency). Children in the current sample were very close to this time (*Mdn* = 21). There was a decrease of 2.5 minutes and an increase of three minutes in the time it took for children to fall asleep four- and eight-weeks' post-intervention respectively.

Table 26

Sleep diary, sleep-onset delay scores over time

Child	Pre-intervention	4-weeks' post-intervention	Score change	8-weeks' post-intervention	Score change
Median	21	18.5	2.5 ^a	24	3 ^b
IQR ^c	16 – 65	15.25 – 27.75	-	17 - 28	-

- Missing data. ^a A decrease in time. ^b An increase in time. ^c Interquartile range

SLEEP DURATION

CSHQ (parent)

Table 27 presents the comparison of the CSHQ (parent) pre-intervention sleep duration scores for children with the scores four- and eight-weeks' post-intervention. Of the 11 sleep diaries returned, parents reported that seven children (64%) experienced a decrease in difficulties with sleep duration and four children (36%) maintained their level of difficulty. Nine CSHQ sleep duration difficulty responses were provided at the eight-week post-intervention period. Five out of nine children (56%) had a decrease in sleep duration difficulties, three out of nine children (33%) maintained their pre-intervention scores and one child (11%) had an increase in their sleep duration difficulty score.

I compared children's pre-and post-intervention CSHQ sleep duration difficulty levels (*Figure 21*). Children below the threshold of a sleep duration difficulty had a higher sleep duration score four-weeks' post-intervention in comparison with their pre-intervention score. The higher four-week post-intervention score returned to the pre-intervention period eight-weeks' post-intervention. Children with a probable sleep duration difficulty experienced a decrease in sleep duration difficulties four- and eight-weeks' post-intervention. However, the latter analysis requires caution in interpretation as there was missing data from three children.

Table 27

Pre- and post-intervention sleep duration scores

CSHQ	Pre-intervention (T1)	4-weeks' post intervention (T5)	8-weeks' post intervention (T6)
<i>N</i>	14	11	9
Median	6.50	4	3
Interquartile range	4.75 – 7	3 – 5	3 - 6
Increased score	-	0	1
Same score	-	4	3
Decreased score	-	7	5

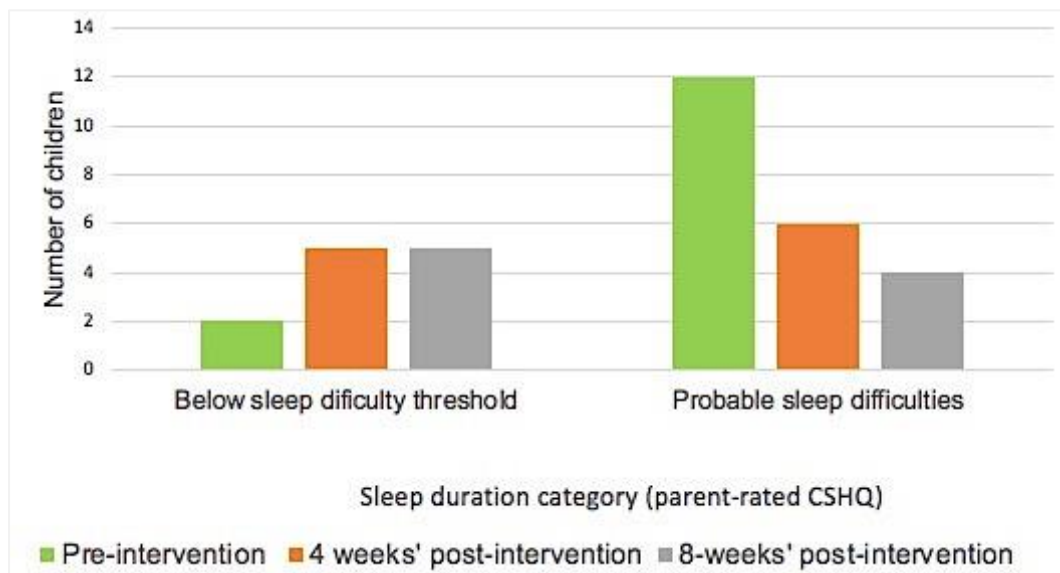


Figure 21. Sleep duration scores at all time points.

Sleep diary (parent)

Children’s sleep duration was measured with the sleep diaries before the intervention (time one), four-weeks’ post-intervention (time five) and eight-weeks post-intervention (time six). Parents returned seven out of 14 sleep diaries (50%), which provided a score at time five that could be compared to the pre-intervention scores. Parents provided six out of 14 sleep diaries (43%) at

time six that could be compared with the pre-intervention scores. Of the data received, two out of seven children (29%) and five out of six children (71%) slept for a longer duration four- and eight-weeks' post-intervention respectively.

Hirshkowitz et al. (2015) recommended school-age children aged six to 13 to attain nine to 11 hours (540 minutes to 660 minutes) of sleep per night. Children spent approximately nine hours and 54 minutes asleep pre-intervention (*Mdn* =594). Table 28 demonstrates that overall, children slept for 12 minutes longer four-weeks' post-intervention than at the pre-intervention stage. Eight-weeks' post-intervention children slept for 16.5 minutes longer than at the pre-intervention stage.

Table 28

Sleep diary, sleep duration scores over time

Child	Pre-intervention (T1)	4-week post-intervention (T5)	Score change	8-week post-intervention (T6)	Score change
Median	594	606	12 ^b	610.50	16.50 ^b
IQR^c	569 – 628	594 – 631		567.25 - 640.75	

- Missing data. ^a A decrease in time. ^b An increase in time. ^c Interquartile range

6.3. RQ 5: HOW DO SELECTED PARTICIPANTS DESCRIBE INDIVIDUAL PRIMARY SCHOOL-AGED CHILDREN'S SLEEP-RELATED EXPERIENCES?

This question is answered using case information from a selected number of participants. Baxter and Jack (2008) suggested that there is no prescribed rule for researchers to report a case study. With this in mind, I provide a rationale for case selection that informs the within-case analyses. Some common themes were identified within each case; to help to structure the within-case analysis, I

first present the thematic map that drew on these themes. Individual experiences that contribute to these overarching themes are explored. The findings identified from the thematic map are explored further in the cross-case analysis in the discussion section in Chapter 7.

CASE SELECTION

The children selected for case study analysis were selected based on similarities (n=3) and differences (n=3) between parent and child reports about the child's sleep using the data provided. Achenbach, McConaughy, and Howell (1987) suggested that differences are common among respondents assessing psychological difficulties. Therefore, cases with parent and child differences are referred to as different cases. Cases with common findings from both parent and child are referred to as similar cases. Children that were not on medication or who did not have a psychiatric diagnosis were given priority of selection and are presented first.

CASE INFORMATION

A case summary is provided in Table 29. For each case, the pre- and post-intervention survey findings are presented to provide an overview of their sleep difficulty scores in each area. Pseudonyms have been used to protect anonymity which corresponds to the randomly allocated identifying letter that was assigned in phase one. I used the parent CSHQ (≥ 41), and child SSR (≥ 46) cut off scores previously described to indicate a threshold for a probable sleeping difficulty. There was no change (pre- or post-intervention) for any participant rating for the question 'do you think you have trouble sleeping?', with the first three participants responding 'yes', and the remaining three participants responding 'no'.

Table 29

Case study participant summary

Child Pseudonym	Age	P/M ^a	Summary of selection	Sleep category at the end of the assessment
Eddie	6	No	Similar case: Eddie and parent reported improvements in sleep.	Probable difficulty and below threshold
Michael	8	No	Different case: Michael reported improvements. Parent reported fluctuations in sleep.	Below threshold
Kyle	8	No	Different case: Kyle reported sleep improvements. Parent reported fluctuations in sleep [Parent interview].	Probable difficulty and below threshold
Sara	7	No	Similar case: Sara and parent reported improvements in sleep.	Below threshold
Oscar	6	Yes	Similar case: Oscar and parent reported improvements in sleep. Unusual sleep behaviour. [Parent interview].	Below threshold
Gordon	10	Parent query	Different case: Gordon reported sleep fluctuation. Parent reported sleep got better.	Probable difficulty and below threshold

^a A child with a psychiatric condition, disability, or who is taking medication that could affect sleep.

The qualitative findings are explored concerning the themes that were identified in each case (where present). The origin of the extracts are identified by session information (S), sleep diaries (SD), parent-reported Children’s Sleep Habits Questionnaire (CSHQ), child-reported Sleep Self-Report (SSR), Interview (I), field notes (F). The eight superordinate themes arising from the qualitative analysis of the individual cases are presented in *Figure 22*. Definitions of these themes and the process of analysis is detailed in Appendix 29 (p.359). For each case, the themes are presented in a way that complements the extracts being explored rather than following a linear structure.

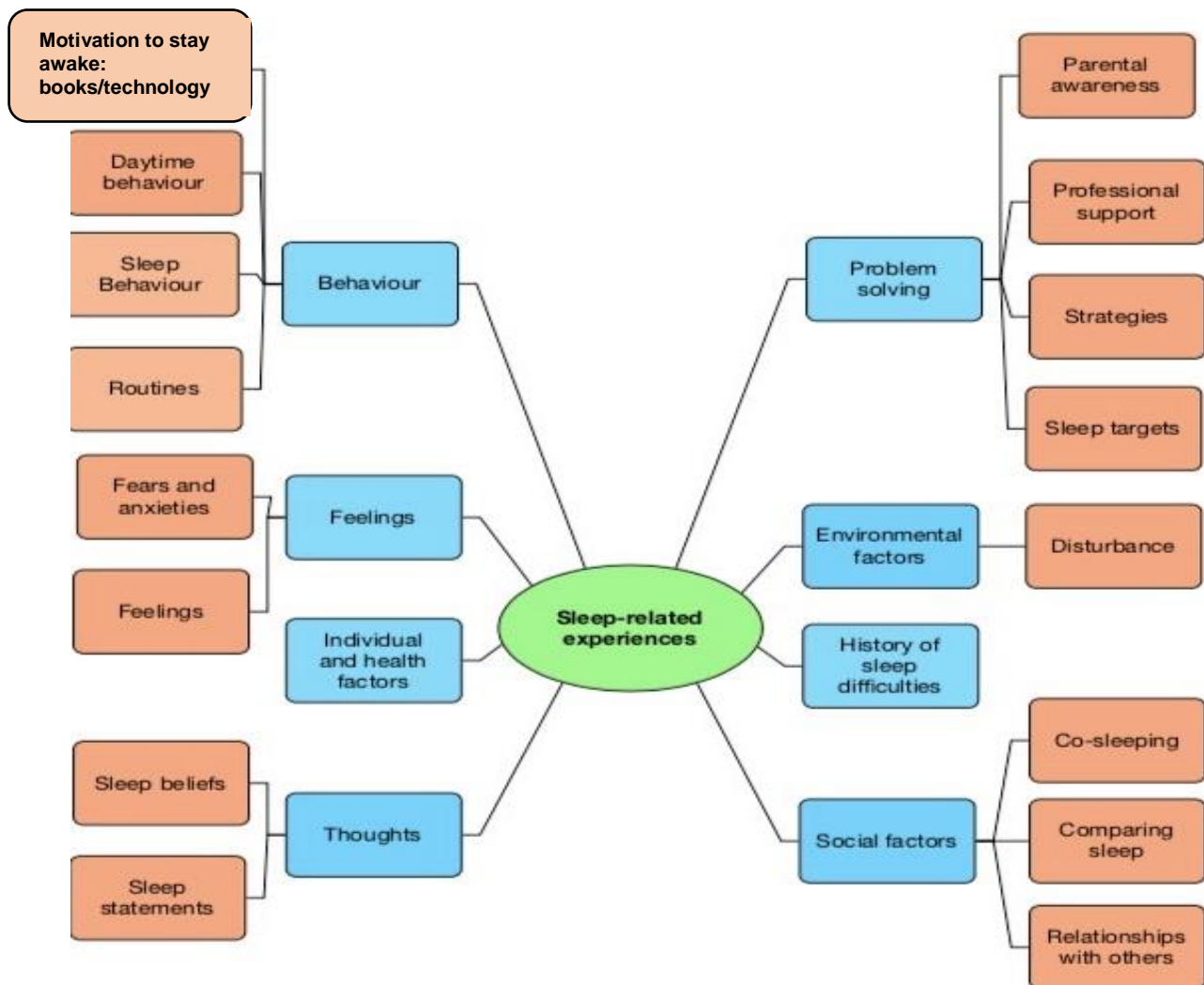


Figure 22. Themes and sub-themes from individual experience

6.3.1. CASE 1: EDDIE.

Both Eddie and his parent identified that he had probable sleep difficulties pre-intervention (*Figure 23*). A reduction in trend was observed in Eddie's sleep difficulty scores by Eddie and his parent at the four-week post-intervention stage. Eddie's four- and eight-week post-intervention scores on the SSR fell below the threshold of a sleeping difficulty. No eight-week post-intervention parent-rated CSHQ data were returned. Overall, both Eddie's scores and his parent's scores indicated a decrease in sleep difficulty over time.

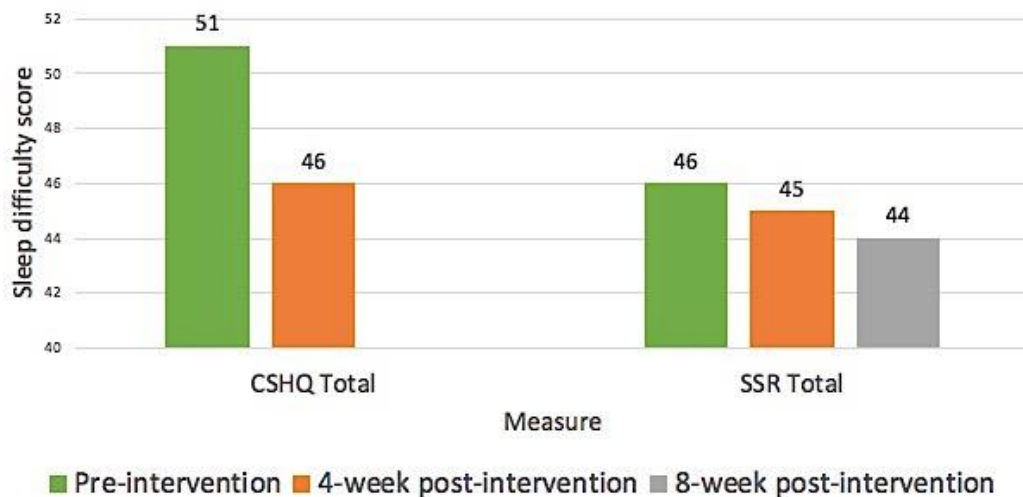


Figure 23. Eddie's pre- and post-intervention sleep difficulty scores.

BEHAVIOUR

SLEEP BEHAVIOUR

When I asked Eddie how his sleep had been during the previous week, he described actively trying to resist falling asleep, and his perception that he does not get enough sleep:

“I try to keep my eyes open when they’re closing”. (S)

“When it’s a school night I don’t get enough sleep because I go to bed at seven pm because I don’t get enough sleep”. (S)

[I noted that Eddie did not appear to be happy about the latter statement] –(F)

Eddie shared that he may fall asleep at different times, suggesting a change in the duration that he was asleep between session two and three:

“I fall asleep at midnight”. (S)

[Usually has trouble falling back to sleep if he wakes up during the night] – (SSR).

[Eddie goes to bed between seven and eight pm on weekdays and between eight and nine on weekends]. (SSR)

The discrepancy in falling asleep during this time could not be cross-checked with the sleep duration (sleep diary) data as this was not returned by his parent; however, this did differ from his reported bedtimes on the SSR.

MOTIVATION TO STAY AWAKE (TECHNOLOGY)

Eddie indicated that he engages in stimulating activities using technology by watching videos and playing games before he goes to bed:

“I use the computer and tablet before bed. I go on YouTube and play the Mr. Bean game”. (S)

FEELINGS

FEARS AND ANXIETIES

Eddie told me about the impact on him of not having any sleep and some of the factors that are associated with his feelings about his sleep:

“If I don’t sleep the whole night I might get worried”. (S)

“I wake up in the night when I’ve woken up because of my dream”. (S)

[Usually has nightmares] (SSR)

FEELINGS

When discussing how sleep makes the children feel, Eddie was able to identify both positive and negative feelings that he associates with “good” or “bad” sleep”:

“Bad sleep: “I feel sad because I haven’t got enough sleep”. (S)

“When I’ve had good sleep, I feel happy and sleepy in my pyjamas”. (S)

Eddie identified a range of feelings that he experiences when he has had a good or bad night’s sleep (Appendix 30, p.365):

Good sleep: “Good, happy, energy, monkey, cheeky, playful, not tired to go to bed”

Bad sleep: “So, so tired, annoyed, bad, my heart is going so fast because I’m so tired. This is what happens”.

(S)

THOUGHTS

SLEEP BELIEFS

When discussing the impact that technology can have on sleep, Eddie commented that technology helps him to fall asleep:

“When I watch TV [television], my eyes feel sleepy and start to close”. (S)

SLEEP STATEMENTS

He identified additional strategies to help him to fall asleep:

“Sometimes books make me fall asleep”. (S)

These findings suggest that Eddie has identified a range of items that from his perspective, helps him to fall asleep.

ENVIRONMENTAL FACTORS

DISTURBANCE

When we discussed things that affect the children’s sleep, Eddie told me that he hears his parents arguing, which can disrupt his sleep:

“Sometimes there’s lots of shouting and I tell my mum”. (S)

SOCIAL FACTORS

COMPARING SLEEP

Overall Eddie felt that his parents sleep better than he does:

“Mum and dad sleep better”. (S)

PROBLEM-SOLVING

SLEEP TARGETS

Eddie independently identified a solution to feeling tired, which was to go to bed “early”. Eddie generated a solution, which suggests that he is aware of ways to manage feelings of tiredness.

“I think it’s better to have an early night so you don’t feel tired”. (S)

6.3.2. CASE 2: MICHAEL.

Figure 24 illustrates Michael’s pre- and eight-week post-intervention CSHQ (parent) scores, which were below the threshold of a sleep difficulty. At the four-week follow-up stage, his sleep difficulty scores rose above the threshold, which indicated a probable sleep difficulty and some fluctuation in scores over time. Michael’s SSR sleep difficulty scores maintained the same score before and four-weeks post-intervention, which was below the threshold of a sleep difficulty. Michael’s sleep difficulty score further reduced at the eight-week post-intervention stage demonstrating a small improvement at this stage. Overall, Michael and his parent reported a small decrease in his sleep difficulty scores over time.

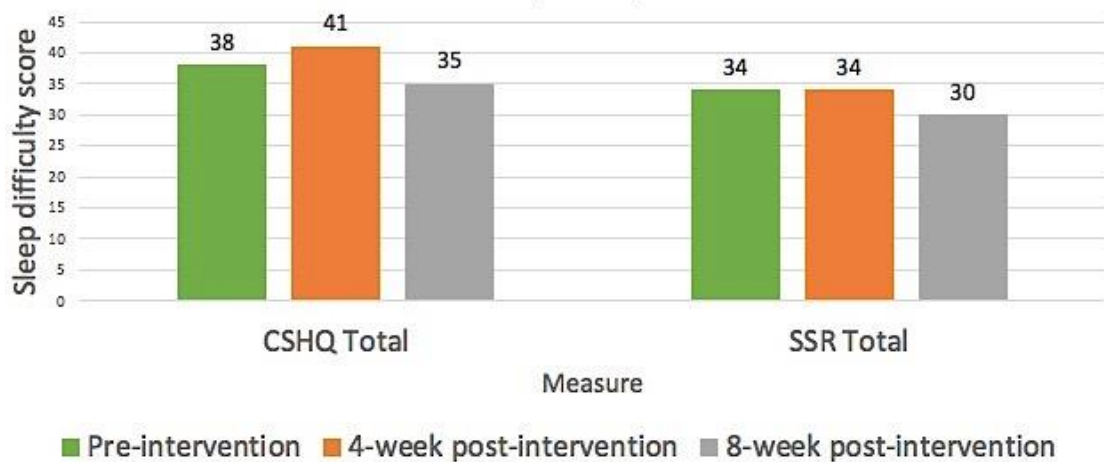


Figure 24. Michael's pre- and post-intervention sleep difficulty scores.

BEHAVIOUR

MOTIVATION TO STAY AWAKE (TECHNOLOGY), AND SLEEP STATEMENTS

Michael identified difficulty going to bed related to how he feels and wanting to play games. He also asserted a belief that suggests that he may have experience of falling asleep using technology:

"It's difficult to go to bed when I'm not tired, angry or when wanting to play games". (S)

[I noted: He stated that he uses technology before bed]. (F)

"Technology helps you to fall asleep". (S)

I noted in my field notes that Michael appeared to challenge me about the use of technology helping him to fall asleep (F).

DAYTIME BEHAVIOUR

On occasion, Michael's daytime behaviour appeared to be in line with the parental report:

[I noted: He said he felt sleepy]. (F)

[Usually has trouble waking up in the morning]. (SSR)

FEELINGS

FEARS AND ANXIETIES

The findings from Michael suggest that he may have feelings and items that he associates with going to bed:

[Usually has a special thing (doll, blanket, etc) that he brings to bed]. (SSR)

[Usually afraid of sleeping alone]. (SSR)

During an activity focused on identifying thoughts, feelings and behaviours, Michael demonstrated some confusion:

[Difficulty demonstrating the difference between thoughts, feelings, and behaviours in this week's activity. Felt that 'angry' with a given example, could be a thought or behaviour]. (F)

THOUGHTS

SLEEP BELIEFS

Michael identified a positive aspect of sleep:

“Sleep helps you to relax” (S)

PROBLEM-SOLVING

RELAXATION STRATEGIES

During one of the sessions, it was snowing outside, and Michael was very excitable (F):

“Found it hard to engage in the relaxation activity today”. (S)

“I go on the iPad to relax”. (S)

[Unsure of the mindfulness video]. (F)

Throughout the sessions, Michael found it difficult to participate in the mindfulness videos or progressive relaxation activities as his peers did. These findings suggest that Michael may prefer to use extrinsic activities and items to help him to relax.

SOCIAL FACTORS

COMPARING SLEEP

Throughout the sessions during the initial check-in, Michael was interested in sharing information about his sleep patterns with other children:

[Comparing the time that he goes to bed with another child in the group]. (F)

6.3.3. CASE 3: KYLE.

Figure 25 shows that Kyle's pre- and eight-week post-intervention CSHQ sleep difficulty scores, were above the threshold (≥ 41) indicating a (parent-rated) probable sleep difficulty. Four-weeks post-intervention, there was a reduction in Kyle's total sleep difficulty score demonstrating that he was below the threshold for a sleep difficulty. Kyle's SSR scores suggested that he experienced a decrease in sleep difficulty four-weeks after the intervention demonstrating that his scores moved from above to below the threshold indicative of a sleep difficulty (≥ 46).

Kyle's SSR scores remained below the threshold at the eight-week post-intervention period despite a small increase in his sleep difficulty score. Both parent and child report indicated that Kyle experienced improvements in his sleep. Overall, Kyle and his parent reported fluctuations in Kyle's in sleep difficulty over time, with the CSHQ indicating a probable sleep difficulty, and the SSR indicating that he was below the threshold of a sleep difficulty eight-weeks' post-intervention.

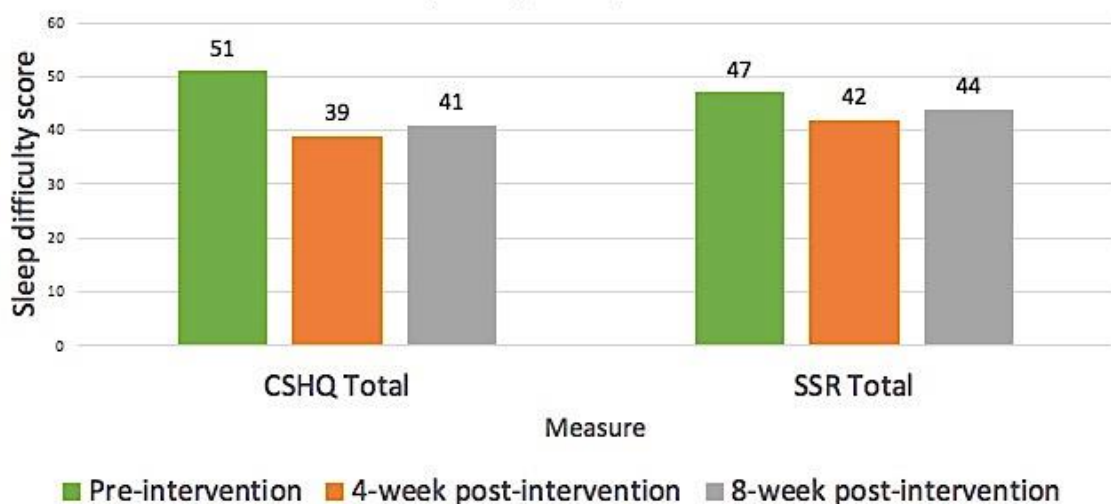


Figure 25. Kyle's pre- and post-intervention sleep difficulty scores.

HISTORY OF SLEEP DIFFICULTIES

Kyle is a child who is reported to have experienced sleep difficulties throughout his life:

“He would wake frequently throughout the night from six weeks to eighteen months of age”.

“He has had difficulty with his sleep since birth, and since this time, he has had occasional difficulties with going to sleep and with being alone and to settle himself to sleep”.

“He has always wanted to be in our (parent’s) bed”.

(I/P)

The above extract suggests that Kyle has had intermittent sleep difficulties since an early age, which has been maintained in the primary school phase of his life.

BEHAVIOUR

DAYTIME BEHAVIOURS

Kyle presents as a child who reported and was reported by his parent to experience sleep-related difficulties in the morning:

Sometimes takes a long time to become alert in the morning (CSHQ)

Usually has trouble waking in the morning (SSR)

SLEEP BEHAVIOUR

Consistent reports were found about the time that it took Kyle to fall asleep (sleep-onset delay) reported to be above the threshold of difficulty:

“Rarely falls asleep in 20 minutes” (CSHQ)

“He takes a long time to fall asleep because he has a lot of thoughts in his head... it’s more than 20 minutes” (I)

ROUTINES

After discussing Kyle’s sleep concerns with his mother, I asked if he had experienced any changes in his life:

“There have been some changes in the family with my mum coming to stay”. (I)

“Kyle feels anxious about the unknown and knowing what to expect from new situations and he can be like this when he goes for sleep-overs with friends or family”. (I)

Kyle was also reported to experience difficulties when his mother was absent:

“Very tired and chatty as mum was away for weekend to visit sick relative and Kyle wanted to talk”. (SD)

These extracts suggest that Kyle experienced difficulties with changes in his routine that had an impact on his sleep and although he felt tired, he wanted to talk instead of sleep.

ENVIRONMENTAL FACTORS

DISTURBED BY OTHERS

Kyle was very clear about the factors that had an impact on his sleep; however, this contrasted with the parental report:

“Things that keep me up: My brother, my dad playing the guitar, people outside” (S)

[Kyle appears to be sensitive to noise, despite mum watching TV [television] with subtitles and his father stopping playing the guitar before his bed]. (F/I).

[I noted that mum was surprised that Kyle reported that this disturbed his sleep] (F/I).

Kyle’s perspective of what disturbs his sleep appeared to affect his sleep, despite his parents reporting that they have taken steps to minimise this disturbance.

FEELINGS

FEARS AND ANXIETIES

Fears and anxieties was an area of difficulty for Kyle. The following extracts might indicate the complex and co-occurring relationship between sleep and emotions:

"Kyle has racing thoughts, which affect his ability to get to sleep" (I)

Sometimes afraid of sleeping alone (CSHQ)

[Kyle has started to withdraw from some activities that he used to enjoy, such as attending clubs outside of school. Although mum says that Kyle was initially "rude" to a staff member there, which is "unlike him", he had since calmed down and appears to be enjoying his time there]. (F/I).

FEELINGS

Kyle reported positive views about his sleep when he was asked at the start of the intervention sessions. He drew several feelings and words that came to mind associated with having a good night's sleep and bad night's sleep (Appendix 31, p.366):

"My sleep is good".

"My sleep is relaxing".

(Good night's sleep): "relaxed, happy, stressed, good mood, energetic"

(A bad night's sleep): Happy, nervous, sad, angre [angry], stress, concentration"
(S)

INDIVIDUAL AND HEALTH FACTORS

Kyle's sleep was affected due to a skin complaint:

"Late to sleep due to a rash – treated". (SD)

PROBLEM-SOLVING

RELAXATION STRATEGIES

Kyle appeared to enjoy learning about activities and strategies to support his relaxation”:

[He enjoyed the mindfulness video in week one]. (F).

“Used relaxation strategies as anxious about fear of getting another rash”. (SD)

SLEEP TARGETS

Kyle was able to set himself targets to try to improve his sleep:

[Set himself a target to get to bed by nine pm and to do the relaxation exercises before bed.] (F).

“I could turn off all the lights at 8.30 pm to help me to relax” (S)

PROFESSIONAL SUPPORT

Kyle’s mother spoke about some of the challenges that she has experienced in trying to get him some support:

"I don't know if I should be going to him every time he calls out. I just want reassurance that I'm doing the right thing. Sometimes I'll go to him and sometimes I'll go once and then not respond to help him to learn to settle himself". Sometimes there's improvement, and then we're back to square one again". (I)

[A previous referral that mum tried to make to a service that provides mental health and emotional well-being support regarding Kyle's level of anxiety did not meet their criteria]. (F/I).

[Mum provided consent for me to discuss her concerns with the Special Educational Needs Co-ordinator (SENCO) at Kyle's School. I noted that she was not aware of a school SENCO who may be able to offer some support for Kyle in school]. (F/I).

These findings suggest that Kyle's sleep difficulties have an impact on his mother, and in her feelings of self-efficacy about seeking the right support for him. Despite sleep difficulties, it appears that Kyle's mothers' first step of action was to seek support for his mental health. However, these concerns were not previously discussed with the school SENCO, as mum was not aware of this as an avenue of support for Kyle.

STRATEGIES TRIED

Both Kyle and his mother reported trying to support Kyle's sleep:

"I tried the 4-7-8 breathing to try to relax". (S).[4-7-8 breathing refers to a breathing strategy taught to the children].

"I've tried reassuring him to help him to calm down, and I've tried to get help". (I)

SOCIAL FACTORS

CO-SLEEPING AND RELATIONSHIPS WITH OTHERS

Kyle's behaviour was affected by other people, which had an impact on his sleep:

[Sometimes goes into parent's bed]. (SSR)

"Kyle can find it difficult to fall asleep once his brother has fallen asleep and he then feels alone, which he finds difficult". (I)

"Kyle will call out to us (parents) after he has gone to bed". (I)

[Late to bed as cousins slept over and very excited]. (SD)

These findings further support that Kyle may be challenged by changes in his routine, which may dysregulate him. He appears to need contact and reassurance from other people to help him to co-regulate, perhaps from his racing thoughts caused by anxiety (as reported by his mother).

THOUGHTS

SLEEP BELIEFS AND SLEEP STATEMENTS

Kyle had some negative thoughts about his sleep. When he was asked what could help to improve his sleep, he felt it could be improved with social contact:

Does not like to go to sleep.

Usually hard to go to bed. (SSR)

“It would make me happy if my brother played with me” (S)

6.3.4. CASE 3: SARA.

Sara’s parent reported a pre-intervention sleep difficulty score that was above the CSHQ threshold (≥ 41), indicating a probable sleep difficulty (*Figure 26*). There was a reduction in Sara’s total CSHQ sleep difficulty scores at four- and eight-weeks post-intervention, which were below the difficulty threshold. Sara’s SSR sleep difficulty scores followed a similar pattern to that identified in her CSHQ scores. The SSR indicated that Sara’s sleep difficulty score decreased from above the SSR threshold (≥ 46) before the intervention to the below threshold category four- and eight-weeks post-intervention. Overall, both parent and child report an improvement in Sara’s sleep post-intervention.

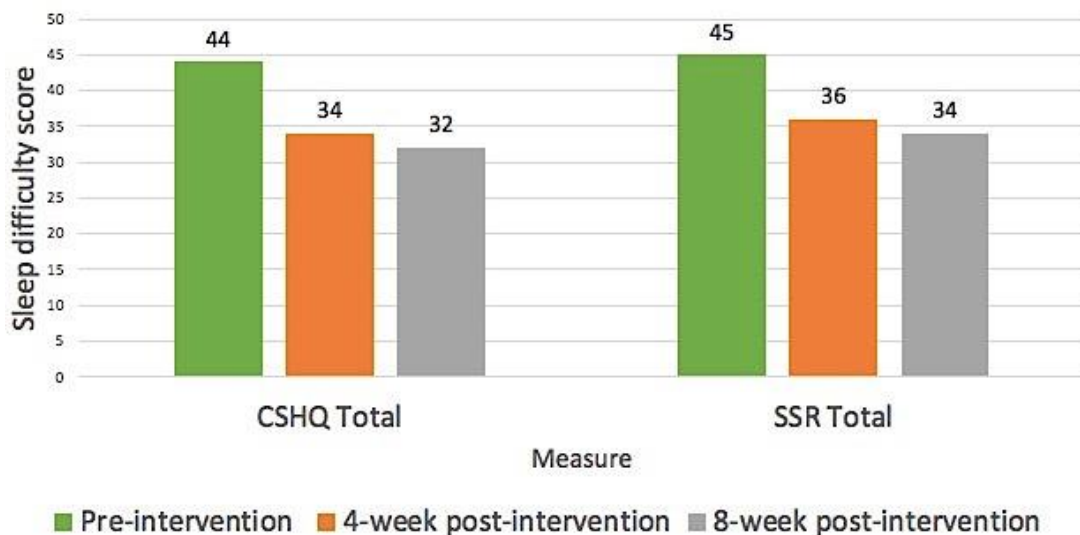


Figure 26. Sara’s pre- and post-intervention sleep difficulty scores.

BEHAVIOUR

ROUTINES

Extracts suggest that Sara has a regular bedtime routine:

Usually goes to bed at the same time each night. (CSHQ)

SLEEP BEHAVIOUR AND MOTIVATION TO STAY AWAKE (BOOKS)

Sara reported that her passion for reading could keep her up later than planned as she enjoys reading in bed, and she wanted to find out what happened next in the story (F):

“Sometimes I stay up reading a whole chapter [of a book] ... I could try to read just half a chapter before bed to help me sleep” (S)

FEELINGS

FEARS AND ANXIETIES

Sara reported one aspect that is difficult for her at bedtime:

Is usually afraid of the dark (SSR)

FEELINGS

Sara created a picture to identify several feelings that she associated with her sleep (Appendix 32, p.367):

["How you feel when you have had a lot of sleep"]: "energy, happy, confedant [confident], can think about lots of things, now [know] a lot of things".

("How you feel when you have not got sleep"): "Confust [confused], tiyerd [tired], count think [cannot think], don't know what's going on".

(S)

The feelings presented highlight that Sara associates positive feelings when she has had a good night's sleep, and feelings of confusion when she feels tired.

PROBLEM-SOLVING

SLEEP TARGETS

Sara set herself a target to improve her sleep.

[Set herself a target that she would like to have better consistency with bedtimes]. (F)

However, the above extract appeared to contrast with the parental report, which indicated that Sara usually goes to bed at the same time every night (CSHQ). Coupled with Sara's challenge of reading a lot when she is in bed, this finding suggests that there may be a difference between when Sara goes to bed and when she may fall asleep.

SOCIAL FACTORS

CO-SLEEPING

Sara reports that she occasionally co-sleeps with her parents:

Sometimes goes into parent's bed during the night. (SSR)

COMPARING SLEEP AND SLEEP STATEMENTS

When thinking about her sleep, Sara reflected on when she gets up in comparison with her brother:

"My sleep would be better if I woke up earlier...I'd be up earlier than my brother"
(S)

THOUGHTS

SLEEP BELIEFS

Sara and her parent reported different views about Sara's sleep:

Usually sleeps the right amount (CSHQ)
Sometimes thinks she sleeps too much. (SSR)

6.3.5. CASE 3: OSCAR.

Oscar's pre- and four-week post-intervention CSHQ (parent) sleep difficulty scores were greater than the threshold (≥ 41) indicating probable difficulties with his sleep (*Figure 27*). Oscar's CSHQ sleep difficulty level was below the threshold at the eight-week follow-up. Oscar's scores on the SSR were below the threshold of a sleep difficulty at all three time-points, and a decrease in sleep difficulty scores was observed over time. Overall, both Oscar and his parent reported a small decrease in sleep difficulties over time.

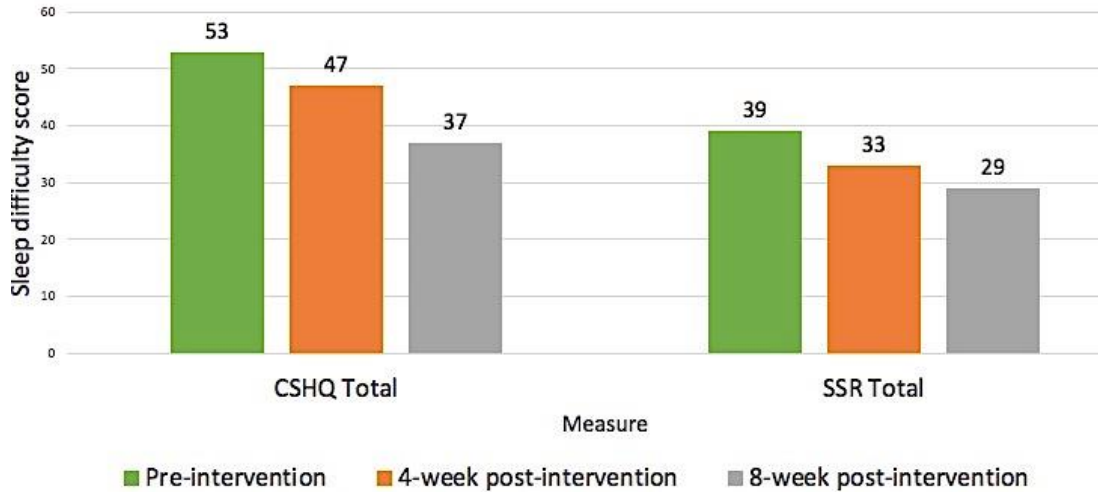


Figure 27. Oscar's pre- and post-intervention sleep difficulty scores.

HISTORY OF SLEEP DIFFICULTIES

Oscar is a child who has a genetic condition related to chromosomal cell deletion. He is reported to have experienced sleep difficulties from an early age:

“Oscar has experienced difficulties with his sleep at least since he was in Reception”. (I)

BEHAVIOUR

DAYTIME BEHAVIOURS

Oscar demonstrated several sleep-related daytime behaviours throughout the intervention:

I observed Oscar rocking throughout the sessions and displaying tiredness that appeared greater than other children of his age (yawning, stretching, and communicating how tired he is). (F).

“He has been going to bed well but waking up is not so good” (I).

SLEEP BEHAVIOUR

Oscar and his mother communicated that he has several unusual sleep-related behaviours:

Oscar: “I wake up and go back to sleep all the time” (S)

Oscar: “My arm moves and my leg moves and I don’t want it to...I can’t stop it” (S)

[Oscar reports that this helps him to get to sleep]. (F)

Mum: “Oscar headbangs at five or six [am] 95% of the time, while he appears to be asleep. It can happen at different times throughout the night. Between nine[pm] to midnight he doesn’t headbang, but he’ll start between 12 [midnight] and five in the morning.

Mum: “The headbanging can be heard throughout the house and is very loud. It starts and stops and lasts for 10 to 15 seconds at a time” (I).

[3 am and 5.35 head banging]. (SD).

[Mum demonstrated that Oscar’s head repetitively moves from side to side and it is mainly his right arm that “goes in the air”. (F/I).

MOTIVATIONS TO STAY AWAKE (TECHNOLOGY)

Oscar made several statements about the impact of technology on his sleep:

“I don’t want to sleep if I’m playing my game or watching my show” (S)

Appeared physically tired, with bags under his eyes (F).

He said “I stayed up all night playing Roblox on the iPad” (S)

“I use the iPad sometimes before bed to play car games”. (S)

ROUTINES

Mum and Oscar reported different views about his bedtime routine:

[Mum reports that he goes to bed between 8 – 8.30 pm and he wakes up for school after 10 - 11 hours of sleep during the week (30-60 minutes less on weekends)]. (F/I)

Oscar: “My mum lets me go to bed at any time. I chose nine pm” (S)

Mum: “I do lose track of the time sometimes”. (I)

PROBLEM-SOLVING

PROFESSIONAL SUPPORT

Oscar’s mother reported concerns with the advice that she had previously received from professionals, which she did not feel identified with Oscar’s behaviour:

Mum reports that she has sought support from the Child and Adolescent Mental Health Service (CAMHS), Oscar's doctor, a local epilepsy nurse and an educational psychologist [who contacted me for guidance about the behaviour]. Professionals have previously informed mum that the nature of Oscar's head banging is behavioural in nature, though mum would like further information and/or a magnetic resonance imaging (MRI) scan to confirm whether this is accurate as she did not feel that it was explored thoroughly. (F/I).

This extract suggests that Oscar's mother is not sure that she has received accurate advice from a range of professionals relating to his sleep. It highlights that identifying sleep difficulties may be a challenging process requiring the involvement of a range of professionals.

STRATEGIES TRIED

Oscar's mother used mixed strategies with Oscar to support his sleep:

When Oscar head bangs mum will put her hand to Oscar's back to help to soothe him. She has sometimes woken him up if the head banging did not stop. (F/I)

Professionals had previously advised mum not to wake Oscar up, however, due to mum's concern about Oscar's headbanging; she had sometimes woken him up.

PARENTAL AWARENESS

Oscar highlighted that he does not wish to disturb his mother when he wakes up at night:

Oscar's mother feels that Oscar does not recall the headbanging behaviour and "he never bruises". (F/I)

"When my mum's asleep I don't go to her". (S)

[Oscar also informed me that he does not want his mother to worry about him when he wakes up at night]. (F)

[Oscar did not want to share this information in front of his mother, but he was happy to communicate it to me directly]. (F)

[Oscar does not understand why his body moves whilst he is asleep, but he is aware that it happens]. (F)

These extracts indicate that Oscar was concerned about the impact of his sleep difficulties on his mother, and he did not wish to speak with her about this. It highlights that Oscar's mother may perceive Oscar's sleep behaviours differently to him.

FEELINGS

FEARS AND ANXIETIES

When I asked Oscar to tell me what kinds of things affect his sleep, he reported:

"I feel worried sometimes if there is a test tomorrow that I won't pass" (S)

This extract infers that Oscar's concerns about school demands and his academic attainment may have an impact on his sleep.

FEELINGS

Oscar reported positive feelings when he has had a good night's sleep and drew how he feels in his pyjamas when he has had a good/bad night's sleep (Appendix 33, p.368):

"I feel happy" (S)

INDIVIDUAL AND HEALTH FACTORS

Oscar's sleep was impacted by being unwell, which was noted in his sleep diary:

Sweating and felt sick (SD)

Oscar's mother reports having sleeping difficulties too. (F)

Oscar's mother reports having sleep difficulties, which is doubly affected by Oscar's headbanging.

SOCIAL FACTORS

COMPARING SLEEP

I noted that Oscar laughed as he told me about how his pet sleeps:

"The cat sleeps better than me" (S)

RELATIONSHIPS WITH OTHERS

Oscar's sleep behaviours affect relationships with family members:

Oscar's head banging has an impact on his ability to spend "quality time" with his grandparents as his head banging disrupts their sleep when he sleeps at their house. (F/I)

THOUGHTS

SLEEP BELIEFS AND SLEEP STATEMENTS

Oscar's feelings about sleep highlighted difficulties with waking up and during his sleep:

"I have nightmares, bad ones" (S)

"I don't like to wake up in the morning" (S)

Does not think he has trouble sleeping. (F)

6.3.6. CASE 3: GORDON.

Gordon's pre-intervention sleep difficulty CSHQ (parent) score was greater than the threshold (<41) indicating probable difficulties with his sleep (*Figure 28*). Gordon continued to have sleep difficulties that were above the threshold at the four-week follow-up period. No eight-week follow-up data were provided by his parent. Gordon's pre- and eight-week post-intervention SSR (child) sleep difficulty scores were below the threshold of a sleep difficulty (<46). Four-weeks post-intervention, his scores raised above the threshold of sleep difficulty indicating probable sleep difficulties at this stage. Overall, Gordon and his parent reported a decrease in his sleep difficulty scores over time.

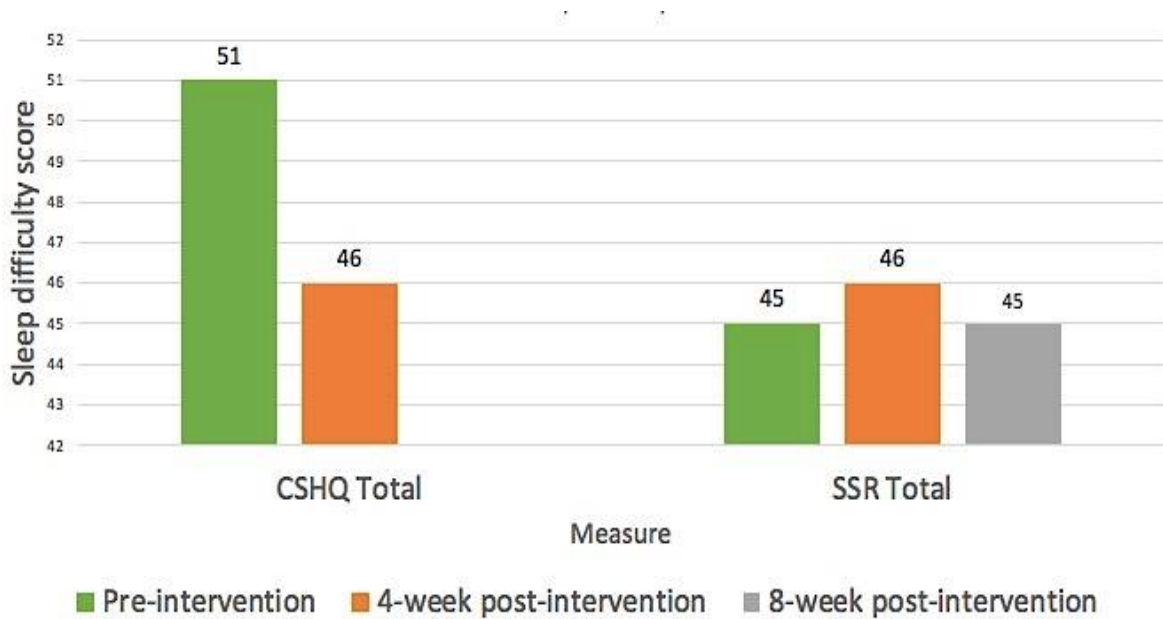


Figure 28. Gordon's pre- and post-intervention sleep difficulty scores.

BEHAVIOUR

ROUTINES

Gordon identified that he has an irregular bedtime routine:

Rarely goes to bed at the same time every night. (SSR)
 Went to bed between nine and 10 pm on school nights (F)

DAYTIME BEHAVIOURS AND SLEEP TARGETS

He is a child who found it difficult to wake up in the morning, but he wanted improvements in his sleep:

“Assisted waking” (SD)

“I could try using my alarm to wake up” (S)

On a scale of one to 10 (sad to happy) he rated his sleep a 5, and he wants it to be a 10. (F)

MOTIVATIONS TO STAY AWAKE (TECHNOLOGY)

Gordon discussed the activities that he takes part in at bedtime or during the night:

Stays up late to play on his Xbox. (F)

"If I wake up I play FIFA or watch YouTube (because) I'm not tired but my mum shouts at me" (S)

RELAXATION STRATEGIES

He enjoyed participating in the relaxation activities:

Mindfulness video: “that was so relaxing”. (S)

INDIVIDUAL AND HEALTH FACTORS AND PROFESSIONAL SUPPORT

On the parent questionnaire, Gordon’s mother responded that she had tried to seek professional help to support Gordon’s sleep difficulties due to her concerns:

Mum has sought support from a clinical psychologist.

Gordon is undergoing an assessment for attention deficit hyperactivity disorder (ADHD)

(F)

FEELINGS

Gordon identified a range of feelings that he experiences when he has had a good or bad night's sleep (Appendix 34, p.369).

Good sleep: "Good, bad, alright, normal"

Bad sleep: "Sensitive, sad, angry, disgust, happy, fright, proud, confused"

(S)

SLEEP BEHAVIOUR AND PARENTAL AWARENESS

Gordon reported sleep behaviour that his parents were not aware of:

Usually stays up late when parents think he is asleep (SSR)

Refusal to go to bed at appropriate time. (SD)

Usually has trouble falling back to sleep if he wakes up in the night. (SSR)

THOUGHTS

SLEEP BELIEFS AND SLEEP STATEMENTS

Gordon has some negative associations about sleep:

Thinks he has trouble sleeping.

Does not like to go to sleep.

(SSR)

6.4. RQ SIX: WHAT IS THE IMPACT OF THE PSYCHO-EDUCATIONAL INTERVENTION ON CHILD PARTICIPANTS' SLEEP KNOWLEDGE POST-INTERVENTION?

Fourteen children completed the sleep knowledge quiz pre- and post-intervention, Table 30 presents the descriptive statistics of these scores. Overall there was a collective 54% increase in sleep knowledge scores post-intervention. Results from a Wilcoxon Signed Ranks test indicated that there was a significant increase with a small effect size (.17) between the pre- ($Mdn = 44$) and four-week post-intervention sleep knowledge scores, $Mdn = 69$, ($z = -2.44$, $n = 14$, $p = .01$, two-tailed).

Figure 29 presents the individual data for children's sleep knowledge scores over time. Eleven out of 14 children (79%) had an increase in their sleep knowledge, whereas there was no impact on sleep knowledge for two out of 14 children (14%). One in 14 children (7%) experienced a decrease in sleep knowledge.

Table 30

Descriptive statistics of the sleep knowledge scores

Sleep Knowledge quiz	No. of items	Child scores		Possible score		IQR ^a
		Min	Max	Lowest	Highest	
Pre-intervention T1	16	19	69	0	100	28 - 50
Post-intervention T5	16	19	94	0	100	42.50 – 76.5

n=14. ^a Interquartile range

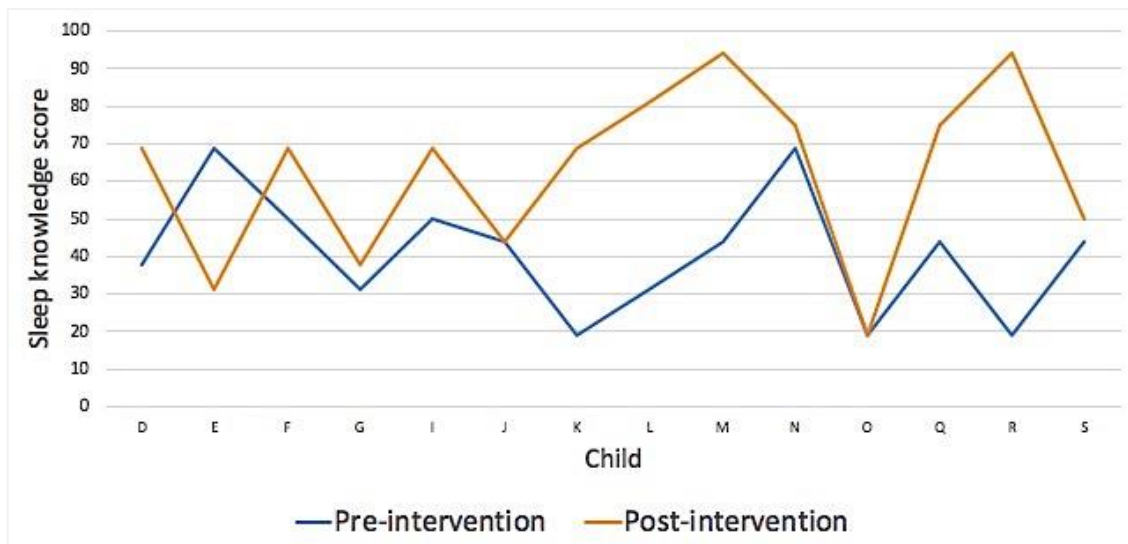


Figure 29. Pre- and post-intervention sleep knowledge scores for individual children.

6.5. RQ SEVEN: HOW DO PARTICIPANTS EVALUATE THE SLEEP CLUB INTERVENTION AND PROCESS?

Evaluation data was received from a total of 25 participants; school staff (*n*=2), children (*n*=14), and parents (*n*=9). Of the parents that responded, one parent had two children taking part in the research, and overall, four parents did not

provide evaluative data. The quantitative findings are presented to provide an overview of respondent views before the qualitative findings from the semi-structured interviews are analysed and presented below to provide greater depth to the evaluation.

QUANTITATIVE ANALYSIS

Thirteen out of 14 children (93%) reported that they would recommend a friend to participate in the Sleep Club intervention. Children were asked to rate the Sleep Club on a scale of one to 10 (not very good to very good). *Figure 30* presents these outcomes. Overall, 13 out of the 14 children (93%) rated the intervention with a score of nine and above and one child (7%) rated the intervention with a score of five.

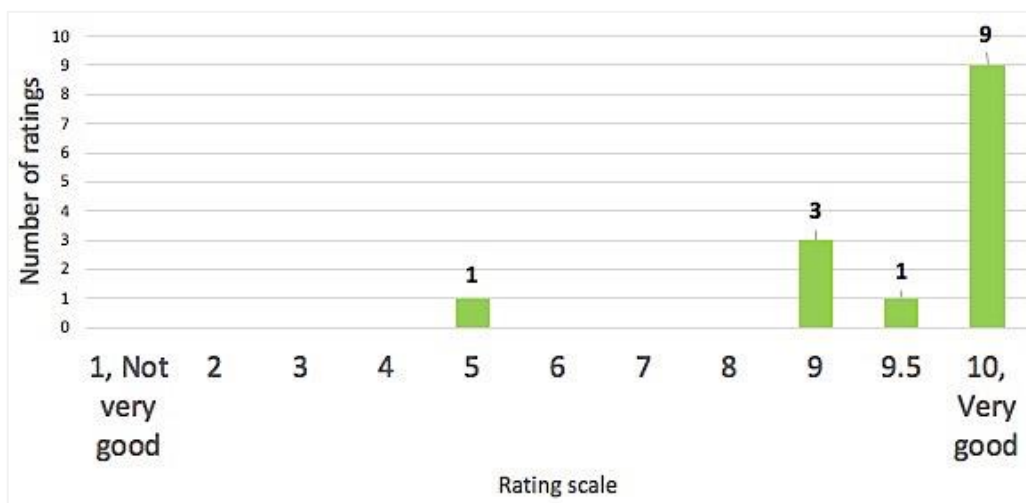


Figure 30. Child evaluation scores of the Sleep Club intervention.

Five out of the nine responding parents (56%) felt that the Sleep Club exceeded their expectations, whereas three parents (33%) felt that it met their expectations. One parent's (11%) ratings did not correspond to the categories provided, the parent reported; "it [the Sleep Club] has not made much difference to his behaviour".

Seven out of the nine parents (78%) who completed the evaluation forms would recommend the Sleep Club intervention to a friend based on the outcomes for them or their child. One parent (11%) reported that they would not recommend the Sleep Club intervention. One parent’s (11%) rating did not correspond to the categories provided; the parent reported; “not sure- maybe works different for different people”.

When rating their level of interest in the Sleep Club sessions on a scale of one (not very interesting) to 10 (very interesting), one teaching assistant rated the intervention on average as 7.5. On a scale of one (not very good) to 10 (very good), one teaching assistant rated the intervention an 8.5, with all school staff stating that they would recommend the Sleep Club to other schools.

Figure 31 presents parent feedback to indicate the impact they felt the intervention had on their child’s sleep behaviour and sleep knowledge. A greater impact was reported by parents for children’s sleep knowledge in comparison to responses for sleep behaviour.

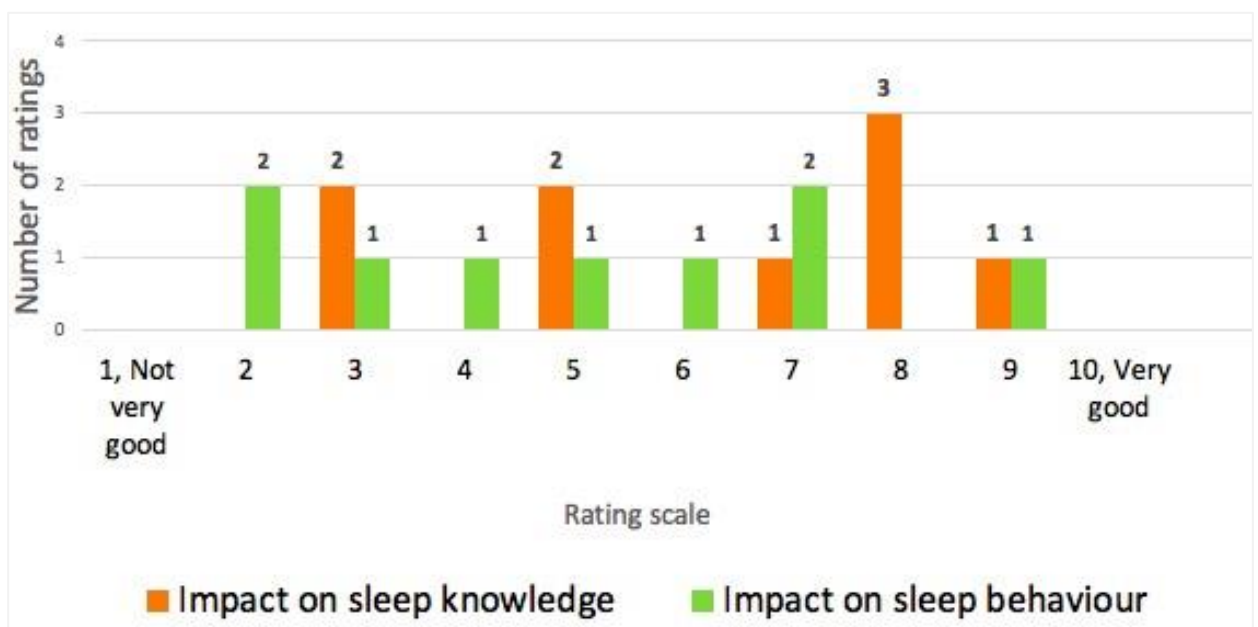


Figure 31. The parent-rated Sleep Club evaluation.

QUALITATIVE ANALYSIS

The three superordinate themes arising from the qualitative cross-case analysis of the semi-structured evaluation forms from parents, teaching assistants and children are presented in *Figure 32*. The initial and final extracts for the thematic analysis are presented respectively in full in Appendix 35 (p.370).

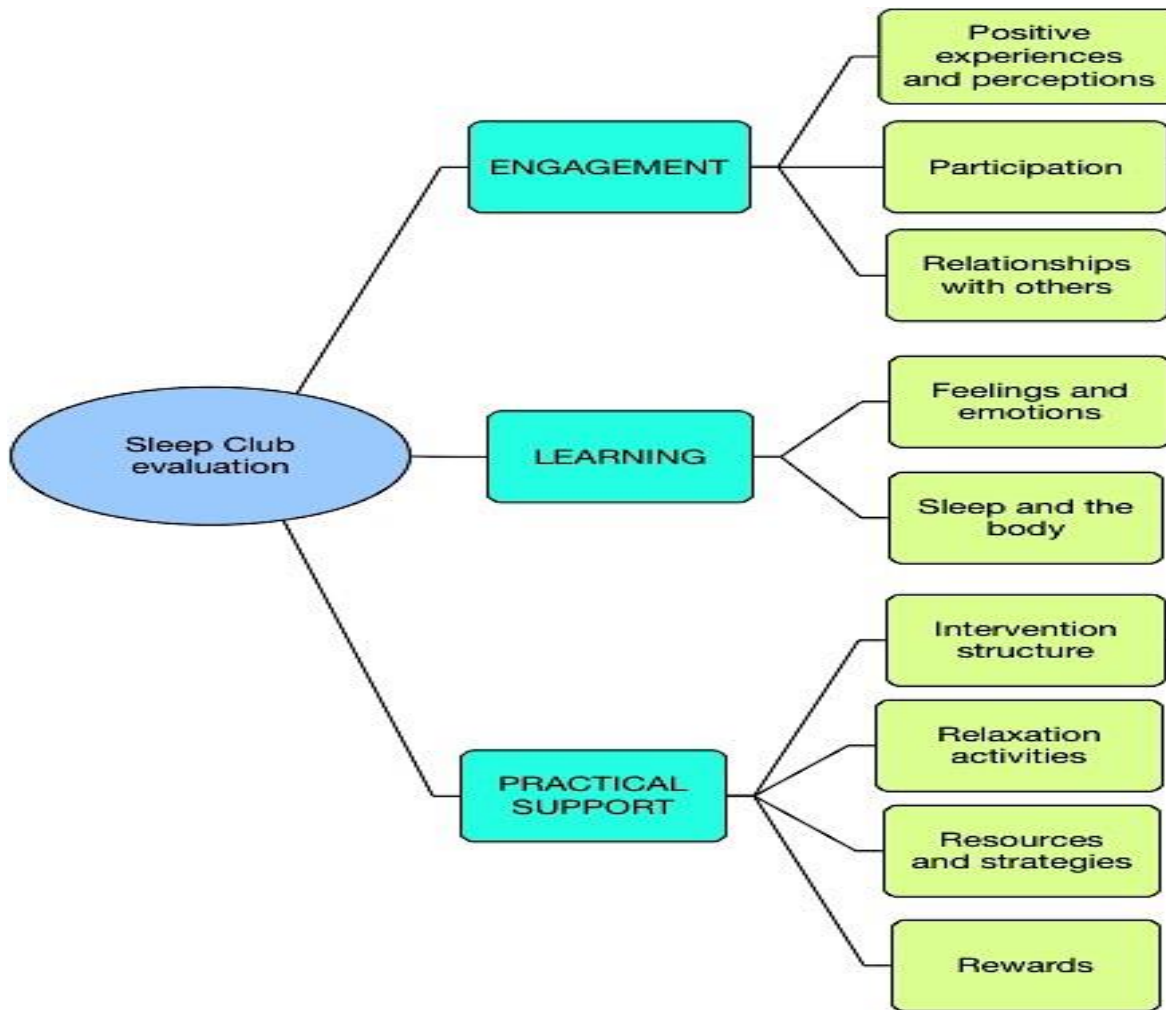


Figure 32. Identified themes and sub-themes: evaluation.

Each theme is outlined with extracts from the semi-structured surveys to support the superordinate theme identified. Quotes are labelled with a letter corresponding to the participant group, e.g. child (C), teaching assistant (TA) and parent (P). Extracts are given as they were written by participants to present the voice of the participant. Any particularly unusual spellings have

been corrected in parenthesis; however, grammar, punctuation and the use of numerals is presented in the text boxes as originally communicated.

ENGAGEMENT

POSITIVE EXPERIENCES AND PERCEPTIONS

Children made several statements that referred to their personal experiences of the intervention, which they found to be beneficial. All the extracts discussed a positive experience or perception about aspects of the intervention:

“I really like the Sleep Club because you learn how to sleep better”.
(C)

“I liked the activities”. (C)

For parents, several extracts related to positive changes in sleep-related behaviour or knowledge for their children and their perceptions of the intervention:

“Usually a good sleeper so little improvements, but before bedtime habits have improved”. (P)

“Understands what keeps him awake and strategies to aid sleep”. (P)

“Informative and enjoyable”. (P)

Children and parents identified positive changes in children’s awareness or behaviours related to sleep:

“Need more sleep”. (C)

“I got to sleep in five or six minutes”. (C)

“Quicker to settle at bedtime – still longer than 20 minutes though!”. (P)

“Independent use of sleep strategies”. (P)

PARTICIPATION

Several extracts referred to positive factors about the intervention enabling participation from children and parents:

“Easier to set boundaries e.g. screen time before bed due to knowledge about sleep”. (P)

“Children were engaged and understood information”. (TA)

“Enabling parent participation”. (TA)

Parents reported that the Sleep Club intervention had a positive impact in instigating communication about sleep:

“Encouraged openness about sleep behaviours and motivations behind them”. (P)

“Open discussion with children about sleep behaviours and emotions”. (P)

One parent spoke of their child now being able to communicate about the impact of their experience with sleep difficulties.

“Able to voice things that keep him awake, i.e. anxieties”. (P)

RELATIONSHIPS WITH OTHERS

When participants were asked about a positive aspect of the intervention, several children’s extracts related to their relationships with those in the Sleep Club:

“Cooperating with other people to do activities”. (C)

“Friends” (C)

“We can tell her anything [anything] and can be onist” [honest] (C)

Relationships appeared to be a key aspect of the intervention, as one child reported that the intervention could have been better:

“Would have liked more children so I could learn from them”. (C)

The importance of relationships was reinforced by an extract from a parent who stated:

“He enjoyed learning and being part of a club”. (P)

LEARNING

The following themes present several aspects of the psycho-educational intervention that children mentioned.

FEELINGS AND EMOTIONS

Children commented on to feelings and emotions as an aspect of the intervention that they had learnt about:

“Drawing”. (C)

“About feelings”. (C)

“Don’t be afraid”. (C)

“He enjoyed learning and being part of a club”. (P)

SLEEP AND THE BODY

Learning about the brain was present in 10 extracts from eight of the 14 children. This practical activity utilised a child-friendly model of a brain and appeared to have been a memorable learning activity. Children also reported learning general information about sleep, technology, and hormones:

“Learning new things about sleep”. (C)

“About the brain and why it needs sleep”. (C)

“That computer(s) and electronics can efect (affect) my sleep”. (C)

Extracts from parents suggest that the psycho-educational element of the Sleep Club was important in developing children’s understanding about sleep:

“Child has better understanding of impacts of less sleep”. (P)

“He loves to know why things are as they are etc, so he has enjoyed learning about sleep strategies”. (P)

PRACTICAL SUPPORT

INTERVENTION STRUCTURE

Extracts from all participant groups recorded areas of improvement for the intervention related to the length and the duration of the intervention:

“More frequent sessions”. (C)
“Would have liked it to have lasted longer”. (C)
“Lasts after six weeks”. (C)
“Good, could’ve been longer”. (P)
“Longer sessions”. (TA)

Both children and parents made recommendations to change a practical aspect of the intervention:

“Not doing questionnaires”. (C)
“Diaries had to be handed in on a Wednesday but the diary sheets were from Monday to Sunday”. (P)

RELAXATION ACTIVITIES

Several children reported that they enjoyed taking part in the relaxation exercises and learning about the different strategies. A teaching assistant also highlighted the benefits of this activity in the intervention:

“The videos”. (C)
“Relaxing”. (C)
“4-7-8- breathing”. (C)
“Very effective and informative for children, especially breathing techniques”. (TA)

RESOURCES AND STRATEGIES

When asked about the benefits of the intervention, all participant groups made suggestions related to resources and strategies:

“Useful materials”. (P)

“Sleep diaries”. (P)

“Sleep quiz”. (TA)

“Relaxation techniques were effective”. (TA)

“How to improve”. (C)

REWARDS

All participant groups noted the impact of the weekly rewards that were given to children as part of the intervention to differentially reinforce those children who had brought back their sleep diaries:

“I liked the prizes”. (C)

“Fantastic rewards for children as incentives”. (TA)

“Son enjoyed the club and toys!” (P)

The extracts suggest that the rewards were seen as a positive aspect of the intervention for children by all participant groups.

CHAPTER 7. PHASE TWO: DISCUSSION

7. INTRODUCTION

The purpose of this study was to contribute to the literature by exploring the views of parents and children about primary school-aged children's sleep. Having identified that children in phase one experienced probable sleep difficulties, this phase aimed to evaluate the impact of a brief, time-bound Sleep Club intervention on children's sleep-related behaviour and sleep-related knowledge. This section discusses the outcomes of the research.

7.1. RQ FOUR: WHAT ARE THE REPORTED DIFFERENCES IN THE SLEEP BEHAVIOUR OF SPECIFIC CHILDREN BETWEEN THE PRE- AND POST-INTERVENTION PERIODS?

Cassoff, Knäuper, Michaelsen, and Gruber (2013) questioned the outcomes of sleep interventions to change sleep behaviour. However, four- and eight-weeks' post-intervention, improvements in children's sleep-related behaviours were found in the surveys and sleep diaries from parents and children. Parent reports indicated a decrease in children with probable sleep difficulties, from 11 to eight children and child-reports indicated a decrease from four to two children. Children further reported a decrease in the number of children identified with a sleep difficulty eight-weeks' post-intervention in comparison with the pre-intervention period (from two children to one child).

The consistent difference between the pre- and four-weeks' post-intervention sleep difficulty scores as reported by parents and children suggests the Sleep Club had the greatest impact on children's sleep during this time. However, this finding was based on the available data, and there were missing scores, which produced skewed data. It is also important to highlight that as an experimental design was not used, a range of confounding factors could have been associated with all of the pre-test, post-test reported outcomes in phase two.

Parents provided data for 11 out of 14 children to enable the comparison of the pre-intervention sleep-onset delay data at the four-week post-intervention stage. Findings from parents indicated a decrease in sleep-onset delay scores for six out of 11 children (55%). Four out of 11 children (36%) had the same level of sleep-onset delay difficulties, and one out of 11 children (9%) had an increase in their pre-intervention scores. Parents provided data for nine children at the eight-week post-intervention stage; four out of nine children (44%) were reported to have lower sleep-onset delay scores than at the pre-intervention stage, and five children (56%) maintained their pre-intervention scores.

An additional three children were rated by their parents to be below the threshold of a sleep-onset delay difficulty at the four-week post-intervention stage in comparison to before the intervention began. Eight-weeks' post-intervention the number of children below the sleep-onset delay difficulty threshold decreased slightly. However, the number of children below the sleep-onset difficulty level remained higher than the number of children pre-intervention stage. In contrast, the number of children with a probable sleep-onset delay difficulty decreased at the four-week post-intervention stage, and the number of children remained constant eight-weeks' post-intervention. These findings suggest that in line with parent-reports, after the intervention there were improvements in the time it took for children to fall asleep.

Parents provided sleep duration data (CSHQ) for 11 out of the 14 children, which enabled data to be compared between the pre- and four-week post-intervention periods. Data from parents indicated that seven out of 11 children (64%) had lower sleep duration difficulty scores four-weeks' post-intervention, whereas four children (36%) maintained their level of difficulty. Of the nine sleep diaries that were returned at the eight-week post-intervention period, five children (56%) had a decrease in their sleep duration difficulties, three children (33%) had the same scores pre-intervention, and one child (11%) had an increase in sleep duration difficulties reported by parents.

A decrease in the number of children with probable sleep duration difficulties was observed over time, from 12 children to six and four children at the pre-,

four-weeks', and eight-weeks' post-intervention periods respectively. Children below the sleep duration difficulty threshold increased from two to five children four-weeks' post-intervention, with the number of children remaining constant eight-weeks' post-intervention. Amschler and McKenzie (2005) suggested that variable changes in the number of children with sleep difficulties over time may be common in preliminary studies. Therefore, such changes may be representative of the transient nature of sleep difficulties or sleep habits, which may naturally change over time (The Children's Sleep Charity, 2016).

In contrast, parents reported that two children demonstrated no change in their sleep-onset or sleep duration scores between all three time-points. Some children may have reasonably stable sleeping patterns, which Mindell et al. (2009) suggested may be the result of established and consistent routines. Therefore these children may have been less responsive to the Sleep Club intervention.

In the current study, four-weeks' post-intervention children experienced a decrease of two and a half minutes in the time it took them to fall asleep every night. When I compared the eight-week post-intervention and pre-intervention periods, it took children a further three minutes to fall asleep. It is likely that such small fluctuations in time may not have a great impact on children's level of sleep difficulty, as Vriend et al. (2013) stated that a sleep deficiency of 60 minutes per night could lead to poorer outcomes for children. In contrast, the sleep diary data indicated that children achieved an additional 12 minutes of sleep per night four-weeks' post-intervention. Eight-weeks' post-intervention children had an additional 16.5 minutes of sleep per night. On average, children slept longer at both post-intervention stages than before the intervention started.

The current findings are modest in comparison to findings reported by Sadeh, Gruber, and Raviv (2003), who extended children's sleep duration by an average of 35 minutes per night with parental involvement to increase or decrease children's typical bedtime by one hour. Nevertheless, the current findings demonstrate that improvements in the time children spend asleep can

be observed in interventions delivered directly to children without manipulating sleep. Therefore, the trend observed in the current findings are promising.

As sleep diaries ask parents to attend to the daily sleep-related behaviours of their children (including recording the time children went to bed and when they fell asleep), parents may have been primed to demonstrate greater awareness of pre-sleep behaviours in diary completion. Sleep diaries may be a useful way of increasing parental awareness of their child's sleep habits. During the Sleep Club sessions, some children commented that they actively fight their sleep, and such behaviour may have had an impact on these findings. Furthermore, some parents commented on the impact of school holidays affecting a child's sleep routine.

7.2. RQ 5: HOW DO SELECTED PARTICIPANTS DESCRIBE INDIVIDUAL PRIMARY SCHOOL-AGED CHILDREN'S SLEEP-RELATED EXPERIENCES?

Owens, Maxim, Nobile, McGuinn, and Msall (2000) identified sleep difficulties in children without a psychiatric condition. The current outcomes support these findings. A range of children with and without conditions (such as attention deficit hyperactivity disorder, autism, conduct disorder and a chromosomal cell disorder) have decreased their sleep difficulty scores. Kanis et al. suggested that parents often identify children's difficulties with anxiety as a factor affecting children's sleep. The Sleep Club provided children with self-help strategies to support problem-solving and relaxation. Therefore, it may be that children no longer sought solutions from their parents during bedtimes. These strategies were to help children to self-regulate and to promote relaxation before bed. Such behaviour may be reported more favourably by parents and children may have been more aware of steps they could take to support their sleep.

There were some difference between parent and child appraisals of the child's sleep, and such differences may indicate why children's sleep difficulties might be unreported or unnoticed (Blair et al., 2012; Paavonen et al., 2000). If

parent's do not agree with the child's experience of their sleep, it might be a factor in early indicators of sleep difficulties being missed.

The findings of the current study indicate the importance of raising awareness of children's sleep and the identification of sleep difficulties for all children within the home, school, and community environments. I am mindful of Kira, Maddison, Hull, Blunden, Olds (2014) and Rigney et al.'s (2015) recommendation that further training may be required to improve teachers' sleep-rated knowledge. I suggest that improving sleep-related knowledge could also be extended to parents and children to improve identification and pathways of support. In addition, developing sleep-related knowledge in children may help to inform them about the importance and impact of sleep on their experiences and outcomes.

CROSS CASE THEMES

7.2.1. BEHAVIOUR

Eddie described being aware of not getting enough sleep, but of also trying to resist falling asleep when he felt tired. Michael reported a similar experience of difficulty in falling asleep when he wanted to play games, though he also felt tired during the day. Though some children identified staying up late to read as a factor that may affect their sleep, O'Brien (2009) posits that sleepy children may have a drive to stay awake despite being tired. In the current research, I wonder if this drive to stay awake relates to competing motivations of extrinsic and intrinsic reinforcement. Direct stimulation and reinforcement is being provided using technology, whereas the delayed internal benefits of sleep may not be so clear to some children, especially those with poor sleep knowledge, or those who report disliking sleep.

Lemola et al. (2011) reported that teenagers' use of technology has an adverse impact on their sleep and affective symptoms. However, in the current study Michael, Eddie, and Oscar highlighted that they used a range of technology

before bed to play games and to watch videos on YouTube. Eggermont and Van den Bulck's (2006) found that teenagers' use technology to help them to fall asleep. However, it appears that such behaviours may start within middle childhood rather than during adolescence as Eggermont and Van den Bulck reported.

Greater information needs to be disseminated to both children and parents about relaxing activities that children can engage in before they try to fall asleep. In the current study, information was provided to the majority of parents via the Sleep Me Happy website and in the Sleep Support Booklet. However, it is unclear if parents reviewed the latter option. In contrast, Appendix 36 (p.375) suggests that there was some engagement from parents with the website.

Hirshkowitz et al. (2015) recommended that children aged six to 13 should have between nine to 11 hours of sleep, though several children in the current study reported inconsistent bedtimes. For example, Oscar indicated being able to choose his bedtime, with his mother reporting that she sometimes loses track of time. Irregular bedtimes that reduce children's sleep by up to one hour has a negative impact on children's attentional skills; short-term and working memory skills (Sadeh, Gruber, & Raviv, 2003; Vriend et al., 2013); and conduct (Holley, Hill, & Stevenson, 2011). Though I am sure that many parents may be aware that sleep routines are beneficial for children, psycho-educational interventions may help to make the psychological impact of sleep loss more evident.

Difficulty waking up in the morning was something reported by both parents and children. Eggermont and Van den Bulck (2006) suggested that for some children this may be related to their use of technology. For Kyle, his reported difficulty with anxiety and persistent thoughts before bedtime interfered with his sleep. For Oscar, his difficulty appeared to be related to disturbed sleep due to waking up throughout the night. Gordon's mother indicated that he required assistance in waking up in the mornings, and she had sought professional support to investigate whether Gordon had an underlying attention deficit hyperactivity disorder. However, it is unclear if this investigation will take into account Hiscock et al.'s (2015) findings that adequate sleep mediated ADHD

symptoms in primary school-age children. Educational psychologists with an opportunity of working with paediatricians or clinical psychologists may be able to support and inform such investigations.

7.2.2. FEELINGS

Eddie identified that he usually had nightmares and can find it difficult to go back to sleep, yet he reported more negative feelings associated with worry and sadness if he did not sleep well. Some children were able to share how they felt through pictures to identify feeling “good”, “confident”, “normal”, “happy”, and “energetic” when they had, had enough sleep. Conversely, children reported feeling “confused”, “nervous”, “fright”, “sensitive”, “stressed”, “annoyed”, “unable to think”, and “sad” when they had not had enough sleep.

Children may have a range of feelings that they attribute with sleep or aspects of their sleep routine or behaviours and it is essential to acknowledge that they may not always be aware of how to manage these feelings. The findings suggest that children have identified emotional and physiological responses to their sleep. In support of this, Vriend et al. (2013) suggested that there is a role for sleep in children’s emotional regulation, albeit a complex one (Dahl & Lewin, 2002).

Some children, such as Kyle were able to use the relaxation strategies provided to them to help them to fall asleep. Sadeh (1996) suggests that the process of going to sleep can be stressful for some children as it involves the transition and discontinuation of daily activities and social contact to adjusting to the bedroom environment. Therefore, teaching children a range of strategies to help them to self-regulate, could be a practical step to promote positive sleep habits; especially in the absence of co-regulation with a trusted adult.

Children may attribute physiological sensations that are typically associated with stress or anxiety with feelings of tiredness. For example, Eddie said, “*my heart is going so fast because I’m so tired*”. Kanis et al. (2015) found that

parents frequently reported that sleep difficulties were associated with psychological factors. Children may benefit from explicit teaching to help them to learn about their sleep, their feelings, and which sensations may require support and strategies to help to promote self-regulation.

Some children demonstrated difficulty understanding emotions despite the literature indicating greater metacognitive abilities and awareness of thoughts and feelings in children aged seven and older (Flavell, Flavell, & Green, 2001; Davis, Levine, & Lench, 2010). Michael exemplified this as although he could identify finding it challenging to go to bed when he is angry or upset; he was less clear on identifying differences between thoughts, feelings and behaviour. Mindell, Kuhn, Lewin, Meltzer, and Sadeh (2006) found that sleep can regulate one's mood, though, Michael's extracts exemplify the complex relationship between sleep and mood as his mood was a barrier to sleep.

7.2.3. INDIVIDUAL AND HEALTH FACTORS

A range of factors appeared to have an impact on children's sleep, including illness, a skin complaint, or parental concerns about their child. For Kyle, the development of a rash had an impact on his sleep, whereas for Oscar, his mother was concerned that his unusual sleep behaviour might have a biological foundation and she reported experiencing sleep difficulties too. Such concerns are supported by the literature, which has identified noteworthy knowledge gaps amongst paediatricians and nurses about children's sleep (Kanis et al. 2015; Mindell & Owens, 2003). Given the relatively low focus on primary school-aged children's sleep within educational psychological literature, such knowledge gaps may be present in different extremes for EPs too.

7.2.4. THOUGHTS

Children in the current study identified the need for external influences to help them to sleep. Several children reported that watching television helps them to fall asleep or to relax. This behaviour mirrors the findings put forward by Eggermont and Van den Bulck (2006) for teenagers who use technology as a sleep aid. There may be some overlap between the sleep habits of some primary and secondary school-aged children worthy of further exploration. It provides greater weight to the importance of providing sleep education to support primary school-aged children's sleep and to promote less dependent strategies to help children to self-regulate before bed before poor habits are developed.

Kyle felt that interacting with his brother would help him to fall asleep, yet for his mother, this was a factor that often prevented him from getting to sleep. Some children reported going to sleep with an object (such as a toy or special blanket) and had negative thoughts about sleep. Some children may not like to sleep or find it hard to go to bed. Some children may benefit from adult support to form more positive associations around bedtimes and to support children to overcome challenges with their sleep. As potential non-clinical sleep difficulties, these behaviours could be intervened on before they become more difficult to overcome (Newark, 2013).

7.2.5. PROBLEM-SOLVING

Many children were able to identify solutions to help their sleep, though it is unknown whether they were able to carry out the targets that they had set. Parental input could support the efficacy of sleep interventions as they may be able to remind and encourage children to follow through on the targets that they have set. Some parents reported that their children were independently using some of the strategies provided to the children to help with their sleep. The use of breathing exercises was reported some participants.

Gordon reported being awake when his parents thought he was asleep, whereas Oscar reported not wanting to wake up or worry his mother about his sleep-behaviours. During the night some children may engage in behaviours unknown to their parents and children may have different reasons for not alerting their parents of their sleep-disruption. Under-identification of children with sleep difficulties has been previously discussed. However, it became clear through consultation with Kyle's and Oscar's parents, that once sleep difficulties had been identified, some parents may be unsure of what steps to take. For example, parents expressed challenges identifying support, meeting service referral criteria, or feeling content that they had received professional guidance. A lack of confidence or support from professionals around their child's sleep difficulty was reported by Mindell and Owens (2003) and similarly found in the current study. Some parents reported inconsistent delivery of strategies to support their children, but they were clear in wanting guidance.

Kyle's mother reported positive outcomes after I facilitated communication with the school SENCO, which alerted the SENCO to Kyle's anxieties (Appendix 37, p.376). Protective factors were put in place to support him both at school and at home, which provides an example of how parents, school staff and EPs can work systemically to support not only the child's sleep behaviour but also the interrelated symptoms of the behaviour. As sleep difficulties can be exacerbated if left unidentified, there may be a need to develop a clear pathway to support the identification and intervention of children's sleep (Clinical Innovation & Governance, 2016; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001).

7.2.6. ENVIRONMENTAL FACTORS

In the current study, some children and parents identified environmental factors that had an impact on the child's sleep. Kanis, Schwerdtle, Kübler, and Schlarb (2015) suggested that parents identified environmental factors far less frequently as a cause of sleep disorder when compared to psychological difficulties and the use of media. The current study demonstrated that some

children and parents identified a range of environmental influences, such as internal (noise produced by family members or visitors) and external factors (street noise). Luyster et al. (2012) suggested that non-clinical presentations of sleep difficulties could be supported by non-medical professionals. Sleep interventions appear to be a promising early intervention strategy that could contribute such support (Blunden, Benveniste, & Thompson, 2016).

7.2.7. HISTORY OF SLEEP DIFFICULTIES

Some children had experienced sleep difficulties since early childhood, which were either intermittent or continuing during the primary school stage. Two parents completed an interview, and both had children who were reported to have experienced sleep difficulties for at least one year, which had persisted. Stein et al. (2001) stated that children rarely complained about their sleep or sought support for sleep-related difficulties, despite these difficulties sometimes persisting into adolescence.

7.2.8. SOCIAL FACTORS

Some parents and children reported that the child would sometimes go into their parent's bed to sleep. It is important to note that co-sleeping may relate to a range of factors including family and cultural norms (Cassoff, Knäuper, Michaelsen, & Gruber, 2013). In areas of deprivation, such as in the current study, co-sleeping may also relate to challenges with social housing and parents and children living in confined spaces that do not offer separate sleeping arrangements. Quine (2001) suggests that co-sleeping is more likely to occur with stressed parents, those with smaller families and with more responsive parents. Some children were reported to yearn for the company of others, to have difficult thoughts at bedtime, or they were afraid of the dark. I wonder if co-sleeping served as a co-regulation strategy for some children to help them to fall asleep or to return to sleep.

All children who were selected for the case study independently identified that their sleep was not as good as the person (or pet) identified. Others identified the importance of learning from and working with other children during the Sleep Club sessions. By utilising the influence of working in groups, children were able to debate, discuss and reflect on their sleep behaviours, while also learning from other children who had both similar and different experiences to their own.

7.3. RQ SIX: WHAT IS THE IMPACT OF THE PSYCHO-EDUCATIONAL INTERVENTION ON CHILD PARTICIPANTS' SLEEP KNOWLEDGE POST-INTERVENTION?

Of the 14 children who participated in the Sleep Club quiz, there was a notable increase in sleep knowledge for 11 children (79%). Two children (14%) experienced no change in their sleep knowledge, while one child (7%) demonstrated a decrease in sleep knowledge. On average there was a 54% increase in knowledge scores post-intervention in comparison to children's baseline quiz scores. This finding supports the 63% increase in adolescent sleep knowledge found by Sousa, Souza, Louzanda, and Azevedo (2013) and suggests the added potential for some primary school-aged children to increase their sleep knowledge as part of a brief sleep intervention. The improvements in children's sleep knowledge in the current study extend Cassoff, Knäuper, Michaelsen, and Gruber's (2013) assertion that it is common for sleep education programmes to increase sleep knowledge among adolescents. Similar improvements in sleep knowledge may be obtained for some primary school-aged children.

7.4. RQ SEVEN: HOW DO PARTICIPANTS EVALUATE THE SLEEP CLUB INTERVENTION AND PROCESS?

Analysis of the evaluation forms from parents, teaching assistants (TAs) and children indicated that overall, 22 out of the 29 participants (76%) who returned an evaluation form would recommend the Sleep Club intervention to a friend (or to another school). Two participants would not recommend the Sleep Club, and one parent was unsure if they would recommend the Sleep Club to others. Overall, the Sleep Club was received positively by the majority of participants. Of the nine responses obtained from parents, five parents (56%) felt that the intervention exceeded their expectations. Three parents (33%) felt that the Sleep Club met their expectations, while one parent (11%) did not directly answer the question.

The TAs further rated their interest in the intervention on a scale of one to 10, with higher scores signifying a higher level of interest. TAs rated their level of interest in the Sleep Club as 7.5 and 8.5. Anecdotally, two SENCOs enquired if they could purchase a batch of Sleep Support Booklets for their parents, which demonstrates that the booklet (a part of the Sleep Club) was well-received.

Thematic analysis of qualitative data showed several strengths from the perspective of participants, with superordinate themes related to engagement, learning and practical support.

7.4.1. ENGAGEMENT

The theme of engagement can be compared to Blunden and Rigney's (2015) findings which suggested the importance of community and parental inclusion. Participants commented on a feeling of inclusion in the current study through the ability to involve parents ("*enabling parent participation*") and to take a collaborative approach to the sessions ("*he enjoyed learning and being part of a club*"). Given the contextual nature of sleep difficulties and the way that sleep

behaviours may present, this finding is consistent with recommendations in the literature; to engage those around the child during the delivery of sleep interventions (Galland & Mitchell, 2010).

Both parents and children demonstrated an awareness of changes that they felt were needed or those that had been experienced by the child. Parents commented that boundaries were easier to set, which they felt was due to children's increased sleep knowledge. Similarly, TAs identified that children understood the information being delivered; the intervention content was appropriate for the children selected, and the impact of the intervention helped parents to develop pre-sleep-related habits for their children. Children commented that they enjoyed learning about sleep and the body; the psycho-educational aspect of the Sleep Club appealed to children and enabled them to learn about an area that is often unacknowledged (Vandekerckhove et al., 2012) or misunderstood.

The participants commented on the benefit of the sleep intervention to promote communication about sleep and emotions. For example, being "*able to voice things that keep him awake, i.e. anxieties*". The intervention created an opportunity for an open dialogue about sleep, which parents felt might have supported children's understanding of sleep. Palmer and Alfano (2017) state that sleep behaviours are often misunderstood. The open discussions brought about by the Sleep Club may be an ideal step towards improving the understanding of different perspectives about sleep.

A key aspect of the intervention related to providing opportunities for some children to be able to learn from others through a sense of collaboration and group membership. Some of the sessions focused on children sharing their experiences with other members of the group. However, in my field notes, I recorded that one of the children (child D) did not gain this experience as he was the only child provided with parental consent by his school. Some children commented on the positive experiences with other children, with one child indicating that they would have liked to have been able to learn from more children. The feedback indicates that relationships and group membership were

a pertinent aspect of the intervention for school-aged children. Group membership and the selection of children for sleep interventions may be a factor for professionals to keep in mind.

7.4.2. LEARNING

Children discussed enjoying learning activities related to sleep, emotions, and the body. Interestingly, one child anonymously reported that they had learnt not to be afraid, and I wondered if this was related to gaining greater understanding about sleep and emotions and the interrelated processes involved. These findings suggest that for some children, being able to explore and discuss their feelings in the intervention was a positive aspect for them. The psycho-educational aspect of the intervention was exemplified by one parent: "*he loves to know why things are as they are, so he has enjoyed learning about sleep strategies*". By being able to discuss and share comparable experiences about their sleep, thoughts and feelings in a contained space, children may have felt reassured.

7.4.3. PRACTICAL SUPPORT

Suggestions put forward by all participants mainly centred on extending the Sleep Club sessions and intervention, which reinforces the positive feedback put forward. Participants stated that they would have liked the sessions to have lasted longer than 25 to 30 minutes and for the duration of the intervention to be longer than six weeks. In contrast, Blunden and Rigney (2015) reported that up to 40% of pupils found sleep intervention programmes dull, difficult or too long. For some parents and children, the data collection process was an area of contention, with one child reporting that they would have preferred not to have to complete the questionnaires. An interesting yet valid point made by some parents was about the order of the days listed on the sleep diaries as they were confused that the days were scheduled from Monday to Sunday, but parents started recording from the previous Wednesday. While many parents during the

intervention recorded the sleep diary data in this way, some parents crossed out the pre-recorded days and over-wrote them. While both methods would produce the weekly data required, it highlighted the importance of providing greater clarity to parents when filling in sleep diaries.

Many participants reported that one benefit of the intervention was in the provision of strategies and resources to support parents and children. The majority of children and school staff praised the practical strategies and rewards offered to support children's relaxation and engagement, and parents found the materials offered to them useful.

The confidential nature of the sessions provided trust and security, which was mentioned by one of the pupils ("*We can tell her (anything) and can be (honest)*") enabling children to disclose information that they may otherwise perhaps not have an opportunity to explore. An awareness of such behaviours may support the line of enquiry educational psychologists choose to adopt in exploring children's sleep habits. The benefit of which, may result in greater validity of information from a variety of sources to aid the analytical and formulaic process, but also to contribute to multi-agency working when sleep-related behaviours may present as a clinical condition (Hiscock et al., 2015; Twery, 2002).

CHAPTER 8. OVERALL DISCUSSION AND CONCLUSION

8. INTRODUCTION

This chapter discusses the key findings drawn from both phases of the research. I begin by restating the aims of the research then I discuss the strengths and limitations of the research and explore the contribution made to the knowledge base. Recommendations are made for future research and I discuss the implications of the findings for professional practice before the thesis is concluded.

The overall aim of this research was to investigate the views and experiences of primary school-aged children about their sleep. Specifically, the research aimed to:

- Explore parent, child and teacher views about children's sleep behaviours, psychosocial functioning, and academic outcomes;
- Evaluate the efficacy of a brief, time-bound school-based intervention on children's sleep-related knowledge and sleep behaviours;
- Consider the unique way that educational psychologists can contribute to supporting children to overcome sleep-related difficulties.

8.1. STRENGTHS AND LIMITATIONS OF THE STUDY

CONTRIBUTIONS OF THE RESEARCH

The current study identified that there are parents who identify probable sleep difficulties in their primary school-aged children, though few parents had sought professional support. I found a low rate of concordance for teacher appraisals of children's sleep and psychosocial functioning with parent and child views, which might have an impact on early intervention should a difficulty not be identified

when present. Little research has triangulated the views of parents, teachers, and children to explore their views about primary school-aged children's sleep. Even less research has explored the views and behaviours of children who do not have a psychiatric or medical condition. The findings have highlighted that some parents, teachers, and children may require greater support to not only identify the presence of sleep difficulties but also to identify steps that people can take to help children to overcome them.

To maintain a "continuing and valued position" in the children's workforce, Norwich (2005) recommended greater innovation for applied psychologists (p.397). The current research has been innovative by demonstrating the impact of a Sleep Club intervention designed and delivered by a trainee educational psychologist. Beneficial outcomes have been reported and positive changes in sleep knowledge and sleep-related behaviour have occurred over time. Specifically, key improvements were seen in the amount of sleep children were able to obtain per night. Fewer children were reported by parents and children to have a sleep difficulty and children demonstrated that they had learnt about sleep through higher sleep knowledge scores over time.

I have highlighted the benefit of providing concrete strategies to explicitly support children's sleep-related relaxation and problem-solving skills, which appeared to be a challenge for some children. The creation and distribution of bibliotherapy for parents in the form of a dedicated website and a Sleep Support Booklet was appraised by some parents and teaching assistants due to including parents in the intervention process.

The above findings have demonstrated the efficacy of a brief six-week intervention model; to provide positive outcomes for a small number of children who have and do not have psychiatric or medical conditions. Relatively fast results may be found for some children to gradually start to improve children's sleep-related behaviours and knowledge using a brief school-based intervention that uses a psycho-educational model.

Parents, school staff and children identified the value of some primary school-aged children learning to apply self-regulation strategies to combat bedtime difficulties and sleep-related anxieties. Self-regulation difficulties have been identified in previous literature in relation to school behaviour and diagnostic conditions (Astill et al., 2012). However, the current findings suggest that parents and professionals need to be aware that some primary school-aged children may benefit from strategies that promote self-regulation strategies to support their sleep (Sadeh, 1996). Such support may be delivered through strategic sessions, such as those delivered in the Sleep Club to help children to develop adaptable and positive associations around bedtime.

THE SLEEP CLUB

The Sleep Club intervention was recommended by a large proportion of the participants. The benefit of the intervention was that it was held on a regular day at an allocated time with the same children in attendance. I feel that this helped to build a feeling of security and consistency within and between sessions. One of the teaching assistants commented that The Sleep Club was accessible and engaging to children, and this is a key strength of the intervention. I was able to deliver psycho-educational sessions at a level that children understood, participated in, and enjoyed.

I named the intervention The Sleep Club to enhance the sense of group membership felt by the children taking part. While the impact of the name on group membership was not directly measured, one parent mentioned that their child enjoyed being part of a club. Group membership was further reinforced through the activities during the first session, where all children received an inexpensive glow-stick bracelet that helped them to identify as being a part of the sessions.

The start and end of every session began with similar activities, which helped children to know what to expect, especially with the relaxation exercises, which

varied on a two-week basis. I noted that the Sleep Club worked particularly well with three children present. Small group sizes enabled the children to have enough time to explore their thoughts and for discussion, while still being able to complete the activities. One school had one group of four children, and this required more frequent referral to the Sleep Club rules to enable children to listen to one another and to take turns reasonably well.

Although differential weekly rewards were positively commented upon by a number of participants, further ethical considerations are warranted in the implementation of a school-based intervention. I initially aimed to promote behavioural sleep improvements and efforts by the children through the use of weekly reinforcers (rewards). However, this aspect could have posed an ethical issue and was stopped due to some parents who did not return the sleep diaries needed for differential reward. Instead, all 14 children received a small weekly reward and certificates to avoid the lack of parental return penalising the children.

On reflection, this was felt to be a positive change in the delivery of the intervention as lack of change in children's sleep behaviours may have been indicative of factors that parents and children could not control. Cassoff, Knäuper, Michaelsen, and Gruber (2013) and Quine (2001) suggested that such factors may include social, biological or physical difficulties that can impact children's sleep for example, parasomnias such as sleep walking or dyssomnias such as obstructive sleep apnoea. It is pertinent to consider the impact of behavioural rewards in sleep interventions as children's sleep difficulties may not stem from factors susceptible to behavioural modification and may inadvertently discriminate against children who are not able to make desired improvements, or improvements at the same rate as other children.

While it could have been a concern that the rewards resulted in children providing positive feedback about the Sleep Club Intervention, I felt assured that there were a range of specific and positive feedback that pertained to a number of aspects about the Sleep Club, which was noted by all participants, not just the children taking part.

Reflecting upon the feedback of some of the participants, if time permitted, I would have designed the Sleep Club with 40-minute weekly sessions that perhaps took place for eight weeks. Extending the sessions and the duration of the Sleep Club could have helped to develop more of the sessions that the children particularly enjoyed, such as the focus on feelings, learning about the brain, and practising more relation techniques.

Both parents who were interviewed reported that it was a positive experience. However, a proportion of parents (including the remaining two parents who had sought prior professional support) did not undertake the free consultation. Low engagement in the telephone interviews may have been caused by timing, convenience, or other factors. Though, a strength of the Sleep Club was that parents were provided with a wealth of information on the website and for those who may not have had internet access, parents had access to the Sleep Me Happy Website. One school printed out a number of the resources provided on the website for parents to use.

The timing of intervention delivery was also a factor. The first school completed the intervention within a six-week period without cessation, whereas the final four schools were subject to some interruptions. The breaks included my return to university in January, the February half-term, the Easter holiday and for some children, two 'snow days'. These unavoidable events meant that some sessions had to be rescheduled due to timings or school cancellation; however, this was unavoidable. The sessions were towards the end of the school week and for some children the data collection periods were at the end of term. The end of term may be a time when some children display greater tiredness and may require greater concentration during activities (Albu, Crăcană & Prejbeanu, 2014).

It is worth restating that I do not aim to generalise the current findings obtained to the wider population. Instead, I aim to illustrate the impact of a small-scale study on primary school-aged children's sleep-related behaviour and sleep-related knowledge. The literature has highlighted the bi-directional nature of

sleep difficulties and psychosocial functioning; therefore, it is difficult to identify whether difficulties in the areas identified are related to the individual (biological) or environmental differences that may affect the child. It is clear that there are confounding variables, which may have affected the outcomes of the research. Alternative explanations include child maturation between pre- and post-intervention periods, external events (such as children becoming unwell), or due to statistical regression, where improvements are observed that are unconnected to the intervention.

DESIGN AND MATERIALS

Phase one employed a small-scale correlational design, which enabled me to explore the relationship between children's sleep, their academic outcomes, and their psychosocial functioning. One benefit of this approach was that it enabled me to obtain a range of data from parents, teachers, and parents without the investment that interviews can demand. The analysis of the questionnaires helped to provide an initial understanding of the perspectives held by the participants in relation to children's sleep.

Phase two consisted of a pre-test and post-test intervention change design. This type of design had some disadvantages as some additional factors could have been involved in the changes that were observed. For example, no extended baseline was taken, which could have provided greater insight into individual children's post-test sleep-related behaviour. I had one pre-intervention score as a baseline, though this score could have been biased due to being obtained during an uncharacteristic week for the child. A multiple-baseline of the sleep measures would have provided a greater representation of children's typical sleep behaviours.

It may be argued that a randomised controlled trial (RCT) could have produced greater accuracy and applicability in evaluating the Sleep Club. However, such a design was not feasible due to the scale of the current research and the

resources and time that would have been required. A pragmatic trial (Patsopoulos, 2011) could have been beneficial in this area to consider my methodological position, though the small sample size and time constraints do not lend itself to this approach.

The lack of association between the daytime sleepiness subscale of the SSR and the TDSQ may have been related to the different items within the scales. One item that is similar on both scales ('take naps during the day?') may be less relevant for primary school-aged children in the UK during a time when children (aged six to 11) will typically be learning at school. The items in the surveys that represent daytime sleepiness may be targeting different behaviours that are associated with particular contexts (school and home), or days of the week (weekdays or weekends). These differences may be less sensitive when assessed through the perception of children and their teachers, than by children and their parents. The latter of these pairings encounter sleep directly in the sleep-related environment.

Phase two was designed to be delivered directly to children with communication support and materials for parents. However, I acknowledge that an investment in time was required from parents to complete the questionnaires, the weekly sleep diaries, and the evaluation form. Future research may wish to consider the impact of this on attrition rates for parents. Overall, the sleep diaries and the parent, child and teacher surveys were able to provide informative information about children's sleep habits that could help to prompt further exploration and formulation in professional practice. However, in the current study, one of the strengths was in the ability to triangulate the information obtained to gain an understanding of a child's sleep-related context and an understanding of the perceptions of parents, teachers, and children.

OBJECTIVITY

I had spent six weeks with the children and teaching assistants who took part in the intervention. The strength of this factor was that I was able to build a good rapport with the participants, however, conversely, this could have increased

demand characteristics, with children or teaching assistants communicating things that they (perhaps subconsciously) thought that I would want to hear. During the intervention, this was counterbalanced by the school-research link collecting the evaluation forms from the children and through the use of triangulation, which Oswald, Sherratt and Smith (2014) suggest are valid methods to overcome such bias. However, I am aware that this may have still be a factor in some of the feedback provided and this could have been further guarded against. With more time and resources I could have utilised a matched participants control group by ensuring that the intervention was delivered by someone independent of the research process or through a rotation of staff to reduce the cumulative development of relationships between the children, TAs, and I.

The positive relationships developed with children during the course of the intervention coupled with the overt nature of the data collection process in phase two, could have weakened the level of objectivity obtained from the evaluation forms. The children were aware that their behaviour was being monitored by their parents and being reported back to me through the sleep-diarys. This awareness may have resulted in a Hawthorne-type effect with some children intentionally adjusting their behaviour to demonstrate sleep-related improvements that may not have otherwise occurred. Oswald, Sherratt, and Smith (2014) suggested that the Hawthorne effect causes a bias in research that could be caused by a change in participants' typical behaviour due to an awareness that their behaviour is being observed. The development of relationships during the intervention are seen as a positive aspect noted by some children and due to me being able to immerse myself within the observation environment (Oswald, Sherratt and Smith (2014). Bias could have been avoided by parents covertly gathering data on their children's sleep-related behaviour without children being aware of that parents were recording data about them.

RECRUITMENT AND DATA

Several challenges arose that had an impact on this study, which may relate to the nature of real-world research (Robson, 1993). An initial difficulty arose in the recruitment of parents. Of the schools who consented to take part, only one parent provided consent to participate in an intervention originally planned to be delivered to and designed for parents. Several SENCOs, the Principal EP and EPs within the LA indicated that this low uptake amongst parents within the authority was typically observed. One of the barriers present may have been related to the high number of families who have limited English as an additional language.

One child was excluded from school between phase one and phase two, and several parent data (sleep diaries and questionnaire) were either not returned or returned with incomplete information. The small sample size had an impact on the outcomes found by the statistical tests as some analyses were approaching statistical significance. Though the findings in the current study are based on a small number of participant experiences and behaviours, the findings point to the need for greater consideration among professionals about supporting children with non-clinical sleep difficulties.

Attrition rates for the return of sleep diaries, for example, ranged from 14% to 79% (Appendix 38, p.377). The challenges in data collection skewed the data. Likewise, not all children were able to be included in all stages of analysis, meaning pre-and post-intervention data comparisons were affected. The participants may therefore not have been representative of the population, and it is possible that the self-selecting sampling method could have created a selection bias. Some participants may have elected to take part due to feeling the research was related to their interests or experiences in some way.

FUTURE RECOMMENDATIONS

Due to the impact that some health behaviours can have on children's academic outcomes, further research investigating the role of EPs to apply psychology to health behaviours is warranted. Replicating this study with a larger sample size could help to produce results that provide greater transferability while exploring if similar outcomes in improving children's sleep knowledge and behaviours are found with different samples. It would be interesting to explore the impact of the Sleep Club intervention when delivered by a school staff member as part of a curriculum-based session. Embedding information about children's sleep as part of their curriculum may present the opportunity for school staff to help children to be more informed about the choices they are increasingly starting to make about their sleep as part of an ongoing school-based psycho-educational agenda.

Research exploring the role of children's self-regulation skills and use of relaxation strategies in relation to sleep difficulties seems justified given children in the current study using external sources of support before bed and during night wakings. Such research may expand to exploring children's thoughts and feelings about specific aspects of their bedtime routine and sleep-related behaviour. Perhaps an action research approach may help to identify the specific motivations behind children's thoughts, feelings, and behaviours about their sleep. Such knowledge may help to inform the interventions that are developed to support children's sleep using a bottom-up approach that is informed by children directly.

The Health and Care Professions Council (HCPC, 2015) stresses the importance of EPs working proactively and preventatively with their service users to promote psychological functioning. Therefore, the exploration of a multi-disciplinary sleep pathway for children could be warranted. An investigation may consider the interrelated nature of education, health and bio-psychosocial (biological, psychological, and social) factors in children's sleep to help to meet the needs of children who may experience non-clinical difficulties with their sleep.

EPs can contribute to universal and early intervention support with children's sleep, which may be similar to the support that EPs provide as tier one and tier two mental health professionals (Appleton, 2000). Future research may wish to explore the outcomes of a stepped care approach to children's sleep. I wonder if clearer signposting for early low-level sleep difficulties might increase parent reports of their concerns about children's sleep-related difficulties to professionals. A proposed stepped care sleep intervention model is provided in *Figure 33*. *Figure 33* provides a hypothesised model to illustrate how universal access to preventative sleep-education for all children, may reduce the prevalence or development of children with sleep difficulties. While theoretical, such an approach may benefit from further research to explore the efficacy of such a model to help to identify and support those children in need of additional support.

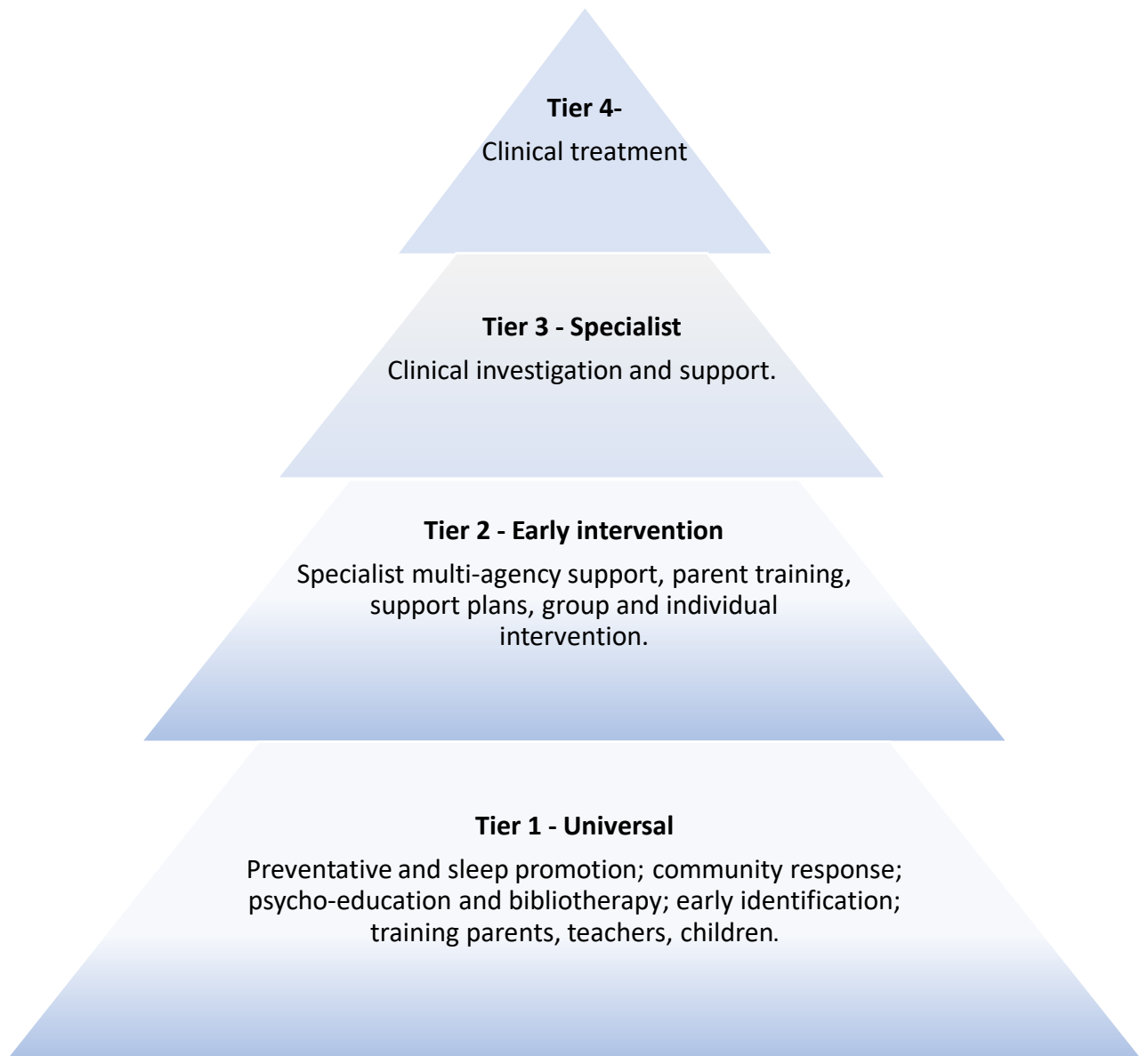


Figure 33. A proposed stepped care approach

8.2. IMPLICATIONS FOR PRACTICE

TRAINING AND CONSULTATION

The current findings support previous research indicating a relationship between sleep and cognition (Curcio et al., 2006), though the findings highlight the complex nature of assessing relationships with psychosocial outcomes. Previous research has recommended that parental report that is absent of additional views from children are a valid and reliable method to assess children's sleep (Meltzer, Avis, Biggs, Reynolds, Crabtree, & Bevans, 2013; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001).

The discrepancy in the current findings between child, parent or teacher report indicates the importance of discussing children's experiences of sleep with children directly. There may be aspects of children's sleep that are better identified by parent or child that may be missed if solely relying on information from one respondent alone. Holley, Hill, and Stevenson (2011) suggested that children may be more reliable than their parents at identifying certain sleep behaviours, therefore by drawing on both parent and child perspectives about the child's sleep, a more informed picture may be built to support an intervention. The current findings support this as children were able to discuss behaviours they exhibit at times when their parents were asleep.

More children reported having difficulties with their sleep than was identified by the survey, suggesting that promoting discussions and awareness for children about sleep difficulties could be justified. It may be that the sleep difficulty stems from a psychosocial or academic concern, which may be resolvable with appropriate guidance and support. Children who demonstrate resistance at bedtime could have this behaviour functionally analysed to explore if sleep-related anxiety (an internalising difficulty) is present. An awareness of such relationships may help to guide EPs to use targeted sleep-related questions during the consultation to explore associated areas of sleep difficulty. Such practice could support the application of targeted, evidence-based strategies,

and to identify the presence of a potential clinical conditions that may need to be stepped up to a level of clinical care.

EPs could benefit from asking targeted questions about different aspects of children's sleep (akin to those in the surveys used). Specific sleep-related lines of enquiry are in direct contrast to asking broad questions such as "*how does X sleep?*", which may contribute to the areas of sleep that may be unidentified as a difficulty for the child. It is essential to raise awareness of children's sleep within the children's workforce to support the early identification of sleep-related symptoms. Some relationships were identified within areas of sleep that could help EPs to unpick a child's difficulty. For example, being aware that children who take a long time to fall asleep are associated with children who may experience sleep-disordered breathing.

Parents of children who demonstrate daytime tiredness could be asked to complete a sleep diary to rule out parasomnias, for example, coupled with individual work with the child to obtain their views. Taking data using sleep diaries or brief questionnaires might provide supplementary information on a child's sleep, which could be explored in greater depth with parents and children. However, should a probable sleep difficulty be identified, EPs may need to consider recommending an initial watchful waiting period to identify if the difficulties identified were persistent or transient, or related to contextual factors, such as specific times of the school year, for example.

Signposting parents and children towards appropriate support may have a wide impact not only on academic outcomes but the psychosocial functioning of children and their families. To do this, EPs could develop sleep training for teachers and wider professionals to raise this awareness and to facilitate conversations about sleep. Children may experience varying levels of stimulation, activity and engagement in the respective home or school environments that have an impact on their level of daytime sleepiness. Such findings are supported by Könen, Dirk, and Schmiedek (2015), who suggested that daytime activities have an impact on levels of daytime sleepiness observed.

Training provides opportunities for networking and identifying opportunities for partnership working. Such an approach may contribute to the local authority training courses delivered to LA staff, to the delivery of training for multi-academy trusts, or to the non-statutory provision offered to schools through traded services.

INTERVENTION DEVELOPMENT

Educational psychologists could address the discrepancy between parent, child and teacher reports by working towards promoting greater understanding of sleep within schools and in the community. EPs can help to inform, engage, and upskill children with appropriate information about their sleep. Such dissemination of knowledge aligns with the Health and Care Professions Council's requirement for EPs to "be able to develop and apply effective interventions to promote psychological well-being, social, emotional and behavioural development and to raise educational standards" (HCPC, 2015, p.24).

Although there may be a range of factors involved in parental motivations to seek professional support for their child's sleep difficulty, the margin between children who have sleep difficulties and parents that have sought professional support highlights the importance for a greater focus on children's sleep. A psycho-educational intervention such as the Sleep Club may provide, information and advice, with targeted support for children with greater levels of sleep difficulty.

Parents, children, and school staff identified several themes that were relevant to them related to children's sleep-related experiences and in the evaluation of the Sleep Club. Such themes could support the development of structured sleep intervention programmes, which could be embedded within a personal, social and health education agenda or curriculum. Blunden, Benveniste, and Thompson (2016) support this and caution against the inefficiency of one-off health promotion campaigns. School staff are in a key position to engage both

parents and children through workshops and interventions. EPs can support this process through training, parent workshops, sleep guidance clinics, and through the design of evidence-based interventions. Such practice could provide a much-needed step towards starting to address the prevalence of children with sleep difficulties at home, at school and in the community.

EPs can work systemically with the interrelating factors that have an impact on the child. Such work can help to identify a range of protective factors and barriers for the child that apply to the range of contexts that they experience. Working in this way may also provide children with a containing space to explore their thoughts and feelings.

The feelings that children were able to identify that they felt when they had a bad night's sleep suggests that some children may need support in identifying alternative ways of managing the effects of tiredness (rather than trying to stay awake, for example). The findings have indicated that some children may not always alert a parent to their sleep difficulty. Due to their understanding of child development, bio-psychosocial factors and understanding of the interrelated factors that may have an impact on children, EPs can deliver preventative interventions for groups of children. Such sessions may help to identify those children who may be more susceptible to sleep difficulties.

DOCTORAL TRAINING

I propose that sleep is an area that deserves attention from professionals whose role is to work with children and young people from birth to 25 to help them to overcome barriers to their learning. It must be noted that not all doctoral training courses in educational psychology deliver specific training on the effect of sleep for primary school-aged children, especially regarding those children who do not have a psychiatric condition.

If the training courses are not disseminating children's sleep-related information to trainee EPs, the sleep-related practice of EPs will be inconsistent. Such

inconsistency may further perpetuate the gaps in identifying and intervening on children's sleep difficulties. Corban (2011) stated that EPs are among the highest qualified workers in the child and young adult workforce. Therefore, it is essential that EPs develop their own awareness of the interrelated and complex nature that sleep has on many factors that affect children's outcomes. Buckhalt, Wolfson, and El-Sheikh (2009) and Rydzkowski, Canale, and Reynolds (2016) promote the importance of sleep-related training for trainee EPs, arguing that greater awareness of the impact of sleep difficulties, and the ability to identify, assess, and intervene on such difficulties is needed within the profession.

8.3. CONCLUSION

There is a role for the EP in supporting children's sleep difficulties through a multi-disciplinary approach with a focus on early intervention and prevention. Some primary school-aged children in the current study experienced probable sleep difficulties that had a lack of professional support by the adults around them. Educational psychologists are in a strategic position to be able to develop and disseminate information about how adults around the child can support improvements in children's sleep, though a sharper focus may be needed during the initial training of EPs to provide greater depth and breadth of sleep-related knowledge.

EPs are well placed to provide psycho-educational interventions to children and to upskill parents, teachers and other professionals in the methods, strategies and information needed to foster a preventative approach to sleep difficulties. Further research and development of the Sleep Club intervention may be promising as a targeted approach to support children as part of a stepped care model of intervention.

While the results found are drawn from a small sample; it is anticipated that the findings may contribute to greater consideration of primary school-aged children's sleep difficulties and the importance of involving parents and children in targeted discussions about children's sleep. Finally, I hope that by drawing

attention to the relative absence of educational psychologists in children's sleep research; it may help to increase discussions about developing approaches to children's sleep in applied practice. Such factors may be especially pertinent in cases where requests for EP involvement involve psychosocial factors (including behaviour difficulties), and poor academic attainment.

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APPENDICES

Appendix 1. The Literature Review Search Strategy

The literature search aimed to provide a wide-ranging overview of the evidence-base that summarised the impact of sleep on school-aged children, interventions that have been delivered to parents by professionals, and the academic and psycho-social outcomes for children who have sleep-related difficulties. The following parameters were used and deemed relevant to inform the literature review:

Electronic searches

To complete the literature search, several electronic databases were explored for peer-reviewed journal articles or published articles, books or papers and university theses. An initial search was conducted to explore whether any research had been conducted to look at the role of the educational psychologist in supporting parents of children with sleep difficulties. This was made using Google Scholar, ResearchGate, The British library Ethos e-theses Online Service, and The University of Exeter's Open Research Exeter (ORE) e-theses, and the online reference system EBSCOhost, which provides access to a range of full-text databases such as Science Direct, Taylor and Francis, Sage Journals, Springer Link, Wiley Online Journals, Sage Publisher, PubMed.

Keyword searches

Following this, wider keyword searches were made using the same search engines/systems with the following keywords: *sleep difficulties, children, educational psychologist, psychologist, school psychologist, daytime tiredness, NREM and REM sleep, daytime sleepiness, sleep hygiene, parenting programmes, primary school, school-aged children, well-being, behaviour, behavioural difficulties, effects, social-emotional, social, emotional, health, psycho-social, SEMH, mental health, academic outcomes, academic progress, interventions, behavioural intervention, sleep interventions and sleep training*. These keywords were used in combination with one another until the items generated were exhausted for relevant articles and/or began to produce previously seen results.

Search expansion

To support the generation of literature produced by the database and search-engine searches, a few sleep researchers and professionals were contacted who provided a recommended list of reading (Vicki Dawson- Chief Executive Officer of the Children's Sleep Charity, Dr Andrew Mayers, and Lyn, Quine). Finally, the reference lists of relevant articles, papers and books were directly searched to obtain their referenced information and to widen the research obtained. Searches were completed in November and December 2016, and February 2017.

Appendix 2. Professionals that work with children with sleep difficulties

Professionals	Cited in	Sector
Health visitors	Sadeh (2005) Beresford, Stuttard, Clarke, Maddison and Beecham (2012) Mindell, Kuhn, Lewin, Meltzer, & Sadeh (2006)	Health
Home visitors	Newark (2013)	Health and Social Care
Paediatric nurse practitioners	Mindell and Owens (2003)	Health
Paediatricians /GPs	Hill, Hogan and Karmiloff-Smith (2007) Sadeh (2005) Hiscock, et al. (2015)	Health
Clinical Psychologists	Ong, Wickramaratne, Min Tang, and Weissman (2006) Heijden, Smits and Gunning (2006)	Health
Dentists	Beresford, Stuttard, Clarke, Maddison, and Beecham (2012)	Health
Occupational therapists	Clinical Innovation and Governance (2016) Kandray and Yacovone (2012) Newark (2013)	Health

Professionals	Cited in	Sector
Ear, nose and throat (ENT) professionals	Hill, Hogan and Karmiloff-Smith (2007)	Health
Sleep Technologist	Hill, Hogan and Karmiloff-Smith (2007)	Health
Psychiatrists	Ong, Wickramaratne, Min Tang and Weissman (2006)	Health
	Heijden, Smits and Gunning (2006)	
Dieticians	Clinical Innovation and Governance (2016)	Health
Speech Pathologists	Clinical Innovation and Governance (2016)	Health
Physiotherapists	Clinical Innovation and Governance (2016)	Health
Behaviour support practitioners	Clinical Innovation and Governance (2016)	Health
Psychologists (not specified)	Sadeh (2005)	-

Appendix 3. Child measures



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Child questionnaire



- 1) What is your full name?

- 2) What is the name of your school? _____
- 3) What is your teacher's name? _____
- 4) Are you a boy or a girl?
Boy Girl
- 5) How old are you?
7 8 9 10
- 6) How many children live with you?
1 2 3 4 5+
Just me Me + 1 Me + 2 Me + 3 Me + 4 or more
- 7) What time do you go to bed on school days?
7 - 8pm 8 - 9pm 9 - 10 pm 10 - 11 pm 11 - 00+
19:00 - 20:00 20:00 - 21:00 21:00 - 22:00 22:00 - 23:00 23:00 - 00:00 +
- 8) What time do you go to bed on weekends?
7 - 8pm 8 - 9pm 9 - 10 pm 10 - 11 pm 11 - 00+
19:00 - 20:00 20:00 - 21:00 21:00 - 22:00 22:00 - 23:00 23:00 - 00:00 +

Please check you have ticked one box for each number.

How are you doing with your school work and progress?

Please tick the box that shows how you are doing in the subjects below.

Reading



Great	Good	Ok	Not ok	Not well

Writing



Great	Good	Ok	Not ok	Not well

Maths



Great	Good	Ok	Not ok	Not well

SLEEP SELF REPORT (Child's Form)

Coding

R = REVERSE SCORING
HIGHER SCORE INDICATES MORE PROBLEMATIC SLEEP

These questions are about your sleep. The researcher will explain the form and read you the questions in class. Please mark your answer to each question in the box. There are no right or wrong answers. Please ask if you do not understand a question. Thank you!

- Who in your family sets the rules about when you go to bed?
 Mom Dad You Other: _____
- Do you think you have trouble sleeping? Yes No
- Do you like to go to sleep? Yes No

BEDTIME

- | | (0)
Usually
(5-7/
week | (2)
Sometimes
(2-4/
week | (3)
Rarely
(8-11/
week or never |
|---|---------------------------------|-----------------------------------|--|
| 4. Do you go to bed at the same time every night on school nights? (R) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Do you fall asleep in the same bed every night? (R) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Do you fall asleep alone? (R) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Do you fall asleep in parents', brothers', or sisters' bed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Do you fall asleep in about 20 minutes? (R) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Do you fight with your parents about going to bed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Is it hard for you to go to bed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Are you ready for bed at your usual bedtime? (R) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Do you have a special thing (doll, blanket, etc.) you bring to bed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Are you afraid of the dark? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Are you afraid of sleeping alone? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Do you stay up late when your parents think you are asleep? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SLEEP BEHAVIOR

- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| 16. Do you think you sleep too little? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Do you think you sleep too much? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Do you wake up at night when your parents think you're asleep? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Do you have trouble falling back to sleep if you wake up during the night? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Do you have nightmares? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Does pain wake you up at night? Where is that pain? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <hr/> | | | |
| 22. Do you sometimes go to someone's bed during the night? If yes, | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Sleep Self Report-Child

1

Rev. 9/18/02

who? _____

DAYTIME SLEEPINESS

- 23. Do you have trouble waking up in the morning?
- 24. Do you feel sleepy during the day?
- 25. Do you take naps during the day?
- 26. Do you feel rested after a night's sleep? (R)

	(3) Usually (5-7)/ week	(2) Sometimes (2-4)/ week	(1) Rarely (0-1)/ week or never
	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Children's wellbeing Questionnaire
(nef and Action for Children, 2009)**

How did you feel over the past week? Circle the number that best fits how you felt.

	Never	On one day	On a few days	Most days	Every day	Done?
a) I felt happy	1	2	3	4	5	
b) I felt sad	1	2	3	4	5	
c) I enjoyed my school work	1	2	3	4	5	
d) I had lots of energy	1	2	3	4	5	
e) I had no-one to play with	1	2	3	4	5	
f) I felt tired	1	2	3	4	5	
g) I kept waking up in the night	1	2	3	4	5	
h) I got on with my friends and family	1	2	3	4	5	
i) I felt like I fit in at school	1	2	3	4	5	
j) I felt good about myself	1	2	3	4	5	

Thank you 😊



Appendix 4. Teacher measures



Graduate School
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Psychology
Department

Teacher Questionnaire



Teacher Information

Teacher: _____ School: _____

Class: _____ Year group: _____ Classroom size: _____

1) What is your gender?

- | | | |
|--------------------------|--------------------------|--------------------------|
| Male | Female | Other/NA |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1 | 2 | 3 |

2) Which age band do you fall within?

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 16 - 25 | 26 - 35 | 36 - 45 | 45 - 55 | 55 - 65+ |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 |

3) How long have you been working as a teacher?

Where possible exclude extended periods of absence (e.g. career breaks).

- | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| This is my
first year | 1 - 2 years | 3 - 5 years | 6 - 10 years | 11 - 15
years | More than
15 years |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1 | 2 | 3 | 4 | 5 | 6 |

Pupils' background information

Please record whether these children have any learning/developmental difficulties, medical conditions, and whether they take any medication

Child	Learning / Developmental Condition(s)?				Medical Condition(s)			Medication?			If yes to any questions, please specify below
	No / Not aware	Yes- minor difficulty identified	Yes- moderate difficulty identified	SEND diagnosis	No / Not aware	Yes	Unknown	No / Not aware	Yes	Unknown	
A:											
B:											
C:											
D:											
E:											

The next section asks questions about the impact of each child's sleep related difficulties.

	Over the past month, has the child had difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?				If you have answered "Yes", please answer the following questions about these difficulties: Do the difficulties upset or distress the child?				Do the difficulties put a burden on you or the class as a whole?			
Child	No	Yes-minor difficulties	Yes-definite difficulties	Yes-severe difficulties	Not at all	Only a little	Quite a lot	A great deal	Not at all	Only a little	Quite a lot	A great deal
A:												
B:												
C:												
D:												
E:												

Teacher Daytime Sleepiness Questionnaire (TDSQ)

Please rate the following statements according to the following scale by putting the associated response into the boxes below:

Times per Week	<1	1 - 6	7
Response code	1	2	3

Child's Name _____

Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
TEACHER RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PEER FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often does this child:	Child				
	A	B	C	D	E
Have trouble staying awake in the morning?					
Have trouble staying awake in the afternoon?					
Take daytime naps?					
Yawn during the day?					
Seem clumsy or uncoordinated?					
Disrupt school because of sleepiness?					
Disrupt school activities because of irritability or aggressive behaviour?					
Have a major discipline problem?					
Appear hyperactive?					
Complain about his/her sleep?					

Academic Attainment

For the identified children please write their level of attainment for the specified subjects below using your school's descriptors:

Child's full name:	A:	B:	C:	D:	E:
English reading					
English writing					
Maths					
On a scale of 0 – 4, how much progress has been made since September 2016? • (none) – 1 • (little) 2 • (moderate) – 3 • (average) – 4 • (above average) -5					

Academic Attainment: information for comparison across schools

Many schools use a variety of different descriptors to record pupil attainment and progress. Using the descriptors below, please record the most applicable abbreviated code into the boxes below for the pupils using the following information:

- English reading (**ER**),
- English Writing (**EW**)
- Maths (**M**)
- Not known (**KN**)

Descriptor	A:	B:	C:	D:	E:
Exceptional / above / above expectations / working beyond / Mastery					
Exceeding / beyond / beyond expectation / Secure					
Expected/ On track / Working within / at /expectation					
Working Towards expectations /Beginning					
Emerging / below / below expectation					

Strengths and Difficulties Questionnaire

T⁴⁻¹⁷

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems dull! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Child's Name

Male/Female

Date of Birth

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Overall, do you think that this child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress the child?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties put a burden on you or the class as a whole?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature Date

Class Teacher/Form Tutor/Head of Year/Other (please specify:)

Thank you very much for your help

© Helen Cooper, 2005

Appendix 5. Parent measures



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Parent questionnaire

1) Which type of parent are you?

Mother	Father	Carer/ Guardian
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2) Which age band do you fall within?

16 - 25	26 - 35	36 - 45	45 - 55	55 - 65
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3) Including the identified child, how many additional children do you have that currently live at home?

1 only the identified child	2 children at home	3 children at home	4 children at home	5+ children at home
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4 a) Have you sought any advice or support from a professional regarding your child's sleep concerns in the past twelve months?

Yes (go to Q.4b)	No
<input type="checkbox"/>	<input type="checkbox"/>

4 b) Have you sought any advice or support from one of the following professionals regarding your child's sleep concerns in the past twelve months?

	No	I have considered it	Yes
GP/Paediatrician	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleep specialist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Educational Psychologist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinical Psychologist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Health Visitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do the difficulties interfere with your child's everyday life in the following areas?				
	Not at all	Only a little	Quite a lot	A great deal
PARENT RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SIBLING/FAMILY FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Medical and psychiatric history

Please tick the following conditions that your child may have. If they do not have this condition, please leave blank.

	Condition	Yes?	Detail
1	Frequent nasal congestion		
2	Trouble breathing through his/her nose		
3	Sinus problems		
4	Chronic bronchitis or cough		
5	Allergies		
6	Asthma		
7	Frequent colds or flus		
8	Frequent ear infections		
9	Frequent strep throat infections		
10	Difficulty swallowing		
11	Acid reflux (gastroesophageal reflux)		
12	Poor or delayed growth		
13	Excessive weight		
14	Hearing problems		
15	Speech problems		
16	Vision problems		
17	Seizures/Epilepsy		
18	Morning headaches		
19	Cerebral Palsy		
20	Heart disease		
21	High blood pressure		
22	Sickle cell disease		
23	Genetic disease		
24	Chromosome diagnosis (e.g. Down's)		
25	Skeletal diagnosis (e.g. dwarfism)		
26	Craniofacial disorder (e.g. Pierre-Robin)		
27	Thyroid problems		
28	Eczema (itchy skin)		
29	Pain		

Psychological and medical history

Please tick the following conditions that your child may have. If they do not have this condition, please leave blank.

	Diagnosis of:	Yes?	Detail
1	Autism		
2	Developmental delay		
3	Hyperactivity/ADHD		
4	Anxiety/Panic attacks		
5	Obsessive compulsive disorder		
6	Depression		
7	Learning disability		
8	Behavioural disorder		
9	Please list any additional psychological, psychiatric, emotional or behavioural condition diagnosed or suspected by a physician/psychologist:		
10	Please list any medications that your child currently takes:		

Children's Sleep Habits Questionnaire (Abbreviated)

The following statements are about your child's sleep habits and possible difficulties with sleep. Think about the past week in your life when you answer these questions. If last week was unusual for a specific reason, choose the most recent typical week.

Tick **usually** if the behaviour occurred 5-7 times a week

Tick **sometimes** if the behaviour occurred 2-4 times a week

Tick **rarely** for 0-1 times per week.

> What is your child's usual bedtime:

Week nights _____ Weekends _____

> What is your child's usual wake time _____

> What is your child's usual amount of sleep each night (no naps):

hours _____ and minutes _____

What is your child's usual amount of sleep each day (naps):

hours _____ and minutes _____

	1 Usually (5-7)	2 Sometimes (2-4)	3 Rarely (0-1)	Problem?		
				Yes	No	N/A
1. Child goes to bed at the same time each night.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Child falls asleep alone in own bed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Child falls asleep within 20 minutes of going to bed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1 Usually (5-7)	2 Sometimes (2-4)	3 Rarely (0-1)	Problem?		
				Yes	No	N/A
4. Child sleeps the right amount.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Child sleeps about the same amount each day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Child wakes up by him/herself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0 Not sleepy	1 Very sleepy	2 Falls asleep	Problem?		
				Yes	No	N/A
7. Watching TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Travelling in the car	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	3 Usually (5-7)	2 Sometimes (2-4)	1 Rarely (0-1)	Problem?		
				Yes	No	N/A
9. Child falls asleep in parents' or sibling's bed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Child struggles at bedtime (cries, refuses to stay in bed etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Child needs parent in room to fall asleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Child is afraid of sleeping alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Child sleeps too little	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3 Usually (5-7)	2 Sometimes (2-4)	1 Rarely (0-1)	Problem?		
				Yes	No	N/A
14. Child is afraid of sleeping in the dark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Child has trouble sleeping away from home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Child moves to somebody else's bed during the night (parents' / sibling's)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Child awakens once during the night.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Child awakens more than once during the night.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Write the number of minutes that a night waking usually lasts						

	3 Usually (5-7)	2 Sometimes (2-4)	1 Rarely (0-1)	Problem?		
				Yes	No	N/A
19. Child talks during sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Child is restless and moves a lot during sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Child sleepwalks during the night	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Child wets the bed at night.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Child grinds teeth during sleep.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3 Usually (5-7)	2 Sometimes (2-4)	1 Rarely (0-1)	Problem?		
				Yes	No	N/A
24. Child awakens alarmed by a frightening dream.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Child awakens during the night screaming, sweating and inconsolable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Child snores loudly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Child seems to stop breathing during sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Child snorts/gasps during sleep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29. Child wakes up in a negative mood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Adults or siblings wake up child	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Child has difficulty getting out of bed in the morning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. Child takes a long time to become alert in the morning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Child seems tired in the morning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Strengths and Difficulties Questionnaire

p 4-17

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months.

Child's Name

Male/Female

Date of Birth

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties put a burden on you or the family as a whole?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date

Mother/Father/Other (please specify:)

Thank you very much for your help

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[University header]

2017 - 2018

TEACHER INFORMATION SHEET and CONSENT FORM

Exploring the impact of sleep difficulties on children's social-emotional and behavioural well-being. Is this a role for the Educational Psychologist?

Who is the researcher? My name is Sanchia De'Cage, a Trainee Educational Psychologist who is researching the above project as part a part of my doctoral thesis in Educational, Child and Community Psychology.

What is the research about? This project aims to explore the relationship between children's sleep-related behaviours and their social-emotional and behavioural functioning by exploring parent, child and teacher views on sleep and functioning for school-aged children.

What does my participation involve? If you consent to take part in the research, you will be asked to complete a survey about each identified pupil, including their sleep habits, medical conditions and well-being. You may omit any questions that you do not wish to answer. You will also be asked to discuss the research with parents that you think may be interested in taking part in the research.

This research involves up to two stages of participation. If you consent to take part in the research you may be invited to take part in phase two:

Phase one:

- Discuss the research with parents that you think may be interested in taking part in the research.

- Hand out the sleep questionnaire to all parents.
- Complete a survey about each identified pupil, including his or her academic progress, sleep habits, medical conditions and well-being (parental consent has been obtained for this). The whole task will take approximately 20 – 25 minutes to complete per child. During this time, you and the researcher may set aside time (15 – 20 minutes) for the pupils to complete their own surveys with the support of the researcher. You and the children may omit any questions that you do not wish to answer.

Phase Two: (you may be randomly selected as part of a smaller sample to take part in the second phase of the research):

- **Between November 2017 – April 2018:** Complete a survey about each identified pupil, including his or her sleep habits, medical conditions and well-being. The whole task will take approximately 20 – 25 minutes to complete per child. During this time, the class teacher and the researcher may set aside time (15 – 20 minutes) for the pupils to complete their own surveys with the support of the researcher. They may omit any questions that they do not wish to answer.
- Complete a survey about each identified pupil, including his or her sleep habits, medical conditions and well-being. The whole task will take approximately 20 – 25 minutes to complete per child. During this time, the class teacher and the researcher may set aside time (15 – 20 minutes) for the pupils to complete their own surveys with the support of the researcher. They may omit any questions that they do not wish to answer.
- To identify 20-25 minutes per week or bi-monthly for a school-based sleep-club intervention to be delivered with the researcher and child participants and a teaching assistant (TA) who can be trained in a reward-based intervention and choose to run similar sleep-clubs with other pupils.
- To encourage parental return of the sleep diaries and questionnaires.

Are there any risks to taking part? This project is not expected to involve physical risks or mental discomfort or harm. You are free to withdraw yourself and your data from the study at any time you choose, with no consequences

(see below for details). Parental consent will also be obtained.

Can I withdraw from the research? Staff, child and parent participation at all stages of the research is completely voluntary and does not involve payment. You are free to withdraw consent for your school staff and pupil participation in the research at any time. Please note, that all data received will be completely anonymised within 48 hours of receipt and any original personal and identifying data that was submitted will be securely destroyed (i.e. cross shredder) within this time. Therefore, any requests for your data to be withdrawn after this stage will be unable to be processed as the anonymised data will no longer be personally identifiable and linked to any one person.

How will you protect my data? Your forms will be kept securely, and any personally identifiable information will be destroyed at the end of the study. All data kept in electronic format will be kept on a password-accessed computer. The results of this research may be published or reported, but your name will not be associated in any way with any published results. To maintain confidentiality of records and your anonymity, you will invent a personal code (you will be asked to write this down later), which will identify your data and your child's data. Your contact details are stored separately from your interview data.

What about consent? Two copies of the informed consent form are presented below. Please sign both copies and retain one for your own records.

What is the benefit of taking part? Upon the completion of the research copies of the sleep manual that will be disseminated to parents involved in the intervention will also be provided to schools. This will include strategies and resources to support parents of primary school-aged children that experience sleep difficulties and tips to overcome these difficulties. An electronic version may also be requested by emailing Sanchia De'Cage on the email address provided below. This information could help school staff to learn more about children's sleep from a psychological perspective, to deliver a personal social health education (PSHE) session on the benefits and risks associated with sleep and to have information about tried and tested strategies that have helped

many parents of children with sleep difficulties.

Data Protection Notice: The information that your teachers provide will be used for research purposes, and their personal data will be processed in accordance with current data protection legislation, and the University's notification lodged at the Information Commissioner's Office. Their personal data will be treated in the strictest confidence and will not be disclosed to any unauthorised third parties. The results of the research will be published in anonymised form. All participants will have the right to remove their data. They have the right to review and amend the transcription of their interview. All raw data will be anonymised and kept confidential. All data will be stored safely and password protected. Data will be kept for a maximum of five years then destroyed.

PHASE 2: The consent form below asks if you are interested in taking part in the second stage of the research, which will involve teachers being randomly selected to form part of the smaller sample (10 class teachers) in phase two. You can opt to take part in only the first phase of the research, or you can opt to take part in both phases of the research. If you are interested in taking part in the second stage of the research, you will be provided with information about this stage upon receipt of your completed survey for phase 1. Phase two involves a school-based sleep intervention for children.

Many thanks for your consideration,

Sanchia De'Cage - Yr 3 Trainee Educational Psychologist

This research has received ethical approval from the University of Exeter research committee.

Two copies of the informed consent form are presented below. Please sign both copies and retain one for your own records.

TEACHER CONSENT FORM

Exploring the impact of sleep difficulties on children's social-emotional and behavioural well-being. Is this a role for the Educational Psychologist?

Self-declaration: I have read and understood the above information on the sleep intervention project and the basis for my involvement. I have given been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. I consent to participate in this study.

Name (PRINT).....

Signature.....

Date.....

Please tick one

I consent to participate in Phase one only

I consent to participate in Phase one and Phase two

Contact details of investigator: sd489@exeter.ac.uk

Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge (m.tunbridge@ex.ac.uk)

The whole task involves

Phase 1

Activity	Time commitments
<ul style="list-style-type: none">• Identify sleepy children• Promote research to parents	Variable
<ul style="list-style-type: none">• Sleep and well-being survey	One survey 20 – 25 minutes

Phase 2

Activity	Time commitments
<ul style="list-style-type: none">• Sleep and well-being survey	One survey 20 – 25 minutes
<ul style="list-style-type: none">• Sleep and well-being survey	One survey 20 – 25 minutes
<ul style="list-style-type: none">• Semi-structured interview	15 minutes

HEADTEACHER INFORMATION SHEET – Phase 2

The impact of a behavioural sleep intervention on primary school children's sleep behaviours and child view's

Who is the researcher? My name is Sanchia De'Cage, a Trainee Educational Psychologist who is researching the above project as part a part of my doctoral thesis in Educational, Child and Community Psychology.

What is the research about? This project aims to explore children's views about their sleep behaviours and routines. I wish to explore how children's views on their sleep behaviours can contribute to professionals' knowledge about children identified with sleep difficulties. Finally, I aim to explore to what extent a school-based behavioural 'sleep-club' intervention has on developing positive sleep behaviours for primary school children.

What does my staff participation involve? This second phase of the research involves you providing permission for a small number of selected pupils to take part in a six-week sleep-club intervention, which lasts for 25 minutes per week in a time convenient to your school timetable. We will ask class teachers to encourage parents to return the weekly sleep diaries at allocated times.

Pupils' involvement will take place over **November 2017 – February 2018** and will include:

- Pupil participation in the regular six-week sleep-club sessions to discuss their views and to receive psycho-educational information to promote positive sleep behaviours. All participants will be differentially rewarded for any progress made each week. A Teaching Assistant may wish to observe to run similar sessions in the future.
- Children will be asked to evaluate the sleep-club through a brief semi-structured questionnaire at the end of the intervention.
- Children will be asked to complete a brief questionnaire on their sleep

behaviours four and eight-week post the intervention.

Are there any risks to taking part? This project is not expected to involve physical risks or mental discomfort or harm. You are free to withdraw your staff or pupil's data from the study at any time you choose, with no consequences (see below for details). Parental consent will also be obtained. Should any concerns arise as a result of information disclosed during the sleep session, appropriate safeguarding procedures will be employed and followed. Children will also be provided with information for ChildLine should they have any concerns that they would like to discuss with a third party.

Can I withdraw from the research? Staff, child and parent participation at all stages of the research is completely voluntary and does not involve payment. You are free to withdraw consent for your school staff and pupil participation in the research at any time. Please note, that all data received will be completely anonymised within 48 hours of receipt and any original personal and identifying data that was submitted will be securely destroyed (i.e. cross shredder) within this time. Therefore, any requests for your data to be withdrawn after this stage will be unable to be processed as the anonymised data will no longer be personally identifiable and linked to any one person.

How will you protect the data gathered? All forms will be kept securely, and any personally identifiable information will be destroyed at the end of the study. All data kept in electronic format will be kept on a password-accessed computer and transferred to a secure file server within 48 hours of receipt. The results of this research may be published or reported, but individual or school names will not be associated in any way with any published results. To maintain confidentiality of records and your anonymity, your class teachers, personally identifiable data will not be shown or discussed with any school staff or persons not affiliated with the research. To maintain confidentiality of records and your anonymity, your personally identifiable data will not be shown or discussed with any school staff or persons not affiliated with the research before your details have been anonymised. Your contact details are stored separately from your interview data.

What about consent? Two copies of the informed consent form are presented below. Please sign both copies and retain one for your own records.

What is the benefit of taking part? Upon the completion of the research copies of a sleep manual that will be disseminated to parents involved in the intervention will also be provided to schools. This will include strategies and resources to support parents of primary school-aged children that experience sleep difficulties and tips to overcome these difficulties. An electronic version may also be requested by emailing Sanchia De'Cage on the email address provided below. This information could help school staff to learn more about children's sleep from a psychological perspective, to deliver personal social health education (PSHE) sessions on the benefits and risks associated with sleep and to have information about tried and tested strategies that have helped many parents of children with sleep difficulties. Should a TA attend the weekly session, they will also be able to run similar sleep-clubs for children in the future to support positive outcomes for children.

Data Protection Notice: The information that your teachers provide will be used for research purposes, and their personal data will be processed in accordance with current data protection legislation, and the University's notification lodged at the Information Commissioner's Office. Their personal data will be treated in the strictest confidence and will not be disclosed to any unauthorised third parties. The results of the research will be published in anonymised form. All participants will have the right to remove their data. They have the right to review and amend the transcription of their interview. All raw data will be anonymised and kept confidential. All data will be stored safely and password protected. Data will be kept for a maximum of five years then destroyed.

Many thanks for your consideration,

Sanchia De'Cage - Yr 3 Trainee Educational Psychologist

Contact details of investigator: sd489@exeter.ac.uk. Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie

[University header]

Headteacher CONSENT FORM – SCHOOL COPY

The impact of a behavioural sleep intervention on primary school children’s sleep behaviours and child view’s

Self-declaration: I have been fully informed about the aims and purposes of the project.

I have read and understood the above information on the sleep intervention project and the basis for my involvement. I have given been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. I consent to my school named below and selected staff (who provide their consent) and their pupils to participate in this study and to provide the necessary information and time requested as required. If applicable, the information, which I give, may be shared between any of the other researcher(s) participating in this project in an anonymised form. All information I give will be treated as confidential. The researcher(s) will make every effort to preserve my anonymity.

Name
(PRINT).....(PARTICIPANT)

Signature.....
(PARTICIPANT)

School_____

Date.....

TEACHER CONSENT FORM – TEACHER COPY

The impact of a behavioural sleep intervention on primary school children’s sleep behaviours and child view’s

Self-declaration: I have been fully informed about the aims and purposes of the project.

I have read and understood the above information on the sleep intervention project and the basis for my involvement. I have been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. If applicable, the information, which I give, may be shared between any of the other researcher(s) participating in this project in an anonymised form. All information I give will be treated as confidential. The researcher(s) will make every effort to preserve my anonymity. I consent to participate in this study.

Name (PRINT)..... (PARTICIPANT)

School_____

Signature..... (PARTICIPANT)

Year group_____

Date.....

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2017 - 2018

PARENT INFORMATION SHEET - PHASE ONE

Exploring the impact of sleep difficulties on children's social-emotional and behavioural well-being. Is this a role for the Educational Psychologist?

Who is the researcher? My name is Sanchia De'Cage, a Trainee Educational Psychologist who is researching the above project as part a part of my doctoral thesis in Educational, Child and Community Psychology.

What is the research about? This project aims to explore the relationship between children's sleep-related behaviours and their social-emotional and behavioural functioning by exploring parent, child and teacher views on sleep and well-being for school-aged children. This stage of the research

What does my participation involve? If you consent to take part in the research, you will be asked to complete a survey about your child's sleep habits, medical conditions and well-being.

This research involves up to two stages of participation. If you consent to take part in the first phase of the research you may be invited to take part in phase two:

Phase One:

- **April - July:** Complete one survey about your child, including his or her sleep habits, medical conditions and well-being (teachers will also report on this). The whole task will take approximately 20 – 25 minutes to complete. You may omit any questions that you do not wish to answer.

Phase Two: (should you provide consent, you may be randomly selected as

part of a smaller group of parents to take part in the second phase of the research):

- **September 2017:** One half-day sleep intervention will be delivered to 10 parents.
- **October 2017:** You will be provided with one sleep support phone call every week for four weeks.

Contact details of investigator: sd489@exeter.ac.uk |

Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge (m.tunbridge@ex.ac.uk)

- **November 2017:** Complete a survey about your child, including his or her sleep habits, medical conditions and well-being (teachers will also report on this). The whole task will take approximately 20 – 25 minutes to complete. You may omit any questions that you do not wish to answer.
- **December 2017:** Complete a survey about your child, including his or her sleep habits, medical conditions and well-being (teachers will also report on this). The whole task will take approximately 20 – 25 minutes to complete. You may omit any questions that you do not wish to answer.
- **December 2017:** To complete a semi-structured interview about your child's sleep and their social-emotional well-being (15 minutes) at a time convenient to you.
-

During the intervention, you will be given a sleep diary to complete for seven days before, during and after the intervention. This is to enable the sleep data to be compared before and after the sleep intervention has been delivered. You will be given instructions on how and when you will need to take this information, and it should take no more than five minutes to complete.

During the intervention, you can access two thirty minute or one sixty-minute free consultation telephone call at a scheduled time.

You will be asked to complete a semi-structured evaluation.

Are there any risks to myself or my child taking part? This project is not expected to involve physical risks or mental discomfort or harm. You are free to

withdraw yourself, your child or your data from the study at any time you choose, with no consequences (see below for details). However, as changes in a child's behaviour (even positive changes) may involve behaviour becoming more challenging for a short period of time before it gets better, parents who are currently experiencing extreme stress are advised not to take part in Phase two.

Can I withdraw from the research? Staff, child and parent participation at all stages of the research is completely voluntary and does not involve payment. You are free to withdraw consent for your school staff and pupil participation in the research at any time. Please note, that all data received will be completely anonymised within 48 hours of receipt and any original personal and identifying data that was submitted will be securely destroyed (i.e. cross shredder) within this time. Therefore, any requests for your data to be withdrawn after this stage will be unable to be processed as the anonymised data will no longer be personally identifiable and linked to any one person.

How will you protect my data? Your forms will be kept securely, and any personally identifiable information will be destroyed at the end of the study. All data kept in electronic format will be kept on a password-accessed computer. The results of this research may be published or reported, but any names given will be anonymised – You will not be associated in any way with any published results. To maintain confidentiality of records and your anonymity, your personally identifiable data will not be shown or discussed with any school staff or persons not affiliated with the research before your details have been anonymised (this includes creating a pseudonym name for you in our records). Your contact details are stored separately from your interview data.

What about consent? Two copies of the informed consent form are presented below. Please sign both copies and retain one for your own records.

What else do I need to know? If you choose to participate, you may withdraw at any time up until the dates given before data analysis starts. You have the right to refuse permission for the publication of any information about yourself or your child, and you may review this information prior to making this decision.

Any information that you give will be used solely for the purposes of this research project, which may include publications or academic conference or seminar presentations. You will be advised if the research will be published, and you will be provided with a copy of the published paper upon request. The information that you give may be shared between the researcher(s) participating in this project in an anonymised form. The information that you provide will be treated as confidential, and the researcher(s) will make every effort to preserve your and your child's anonymity.

What is the benefit of taking part? In October 2017, parents may request an electronic copy of a sleep manual, which will include strategies and resources to support parents experiencing sleep difficulties for primary school-aged children. This may be accessed by emailing Sanchia De'Cage on the email address provided below. This information could help you to learn more about children's sleep from a psychological perspective and to have information about tried and tested strategies that have helped many parents of children with sleep difficulties.

Will anyone else be involved in the research? Your child's class teacher will be asked to complete a questionnaire about some aspects of your child's behaviour, their academic progress and their awareness of any medical conditions. By signing the consent form, you accept that the class teacher will disclose this information and that it will be treated in a confidential manner.

This research has received ethical approval from the University of Exeter research committee.

Many thanks for your consideration,

Sanchia De'Cage - Yr 2 Trainee Educational Psychologist

Contact details of investigator: Sanchia De'Cage: sd489@exeter.ac.uk

If you have any concerns or questions about any part of the research and would like to discuss this with the research supervisors, please contact: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge

(m.tunbridge@ex.ac.uk)

Data Protection Notice

The information you provide will be used for research purposes, and your personal data will be processed in accordance with current data protection legislation, and the University's notification lodged at the Information Commissioner's Office. Your personal data will be treated in the strictest confidence and will not be disclosed to any unauthorised third parties. The results of the research will be published in anonymised form. All participants will have the right to remove their data. You have the right to review and amend the transcription of your interview. All raw data will be anonymised and kept confidential. All data will be stored and password protected. Data will be kept for a maximum of five years then destroyed.

Two copies of the informed consent form are presented below. Please sign both copies and retain one for your own records.

CONSENT FORM

Exploring the impact of sleep difficulties on children's social-emotional and behavioural well-being. Is this a role for the Educational Psychologist?

Self-declaration: I have read and understood the above information on the sleep intervention project and the basis for my involvement. I have been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. I consent to participate in this study.

Name.....

Signature..... Date.....

Declaration on behalf of my child: I have read and understood the above information on the sleep intervention project and the basis for my child's involvement. I have been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. I consent to my child named below taking part in this study.

Child's name..... Child's date of birth.....

Parent Signature..... Date.....

Please tick one

I consent to participate in Phase one only

I consent to participate in Phase one and Phase two

Depending on which phase or phases you have chosen, the whole task involves:

Phase 1

Estimated Month	Activity	Time commitments
April - July	<ul style="list-style-type: none"> • Sleep and well-being survey 	One survey 20 – 25 minutes

And/or

Phase 2

Estimated Month*	Activity	Time commitments
September	<ul style="list-style-type: none"> • Sleep diary 	5 minutes: daily completion for nine weeks.
September	<ul style="list-style-type: none"> • Sleep intervention 	4- hours / half a day session
October	<ul style="list-style-type: none"> • Weekly follow-up phone calls 	One weekly support phone call. Variable times.
November Four week follow up	<ul style="list-style-type: none"> • Sleep and well-being survey 	One survey 20 – 25 minutes
December Eight week follow up	<ul style="list-style-type: none"> • Sleep and well-being survey 	One survey 20 – 25 minutes
December	<ul style="list-style-type: none"> • Semi-structured interview 	15 minutes

*[Dates were amended for the second group of participants]

PARENT INFORMATION SHEET - PHASE TWO

The impact of a behavioural sleep intervention on primary school children's sleep behaviours and child view's

Who is the researcher? My name is Sanchia De'Cage, a Trainee Educational Psychologist who is researching the above project as part a part of my doctoral thesis in Educational, Child and Community Psychology.

What is the research about? This project aims to explore children's views about their sleep behaviours and routines. I wish to explore how children's views on their sleep behaviours can contribute to professionals' knowledge about children identified with sleep difficulties. Finally, I aim to explore to what extent a school-based behavioural 'sleep-club' intervention has on developing positive sleep behaviours for primary school children.

What does my participation involve?

All parents will be informed which group their child has been randomly allocated to before the sleep-club intervention begins. All children and parents taking part in the research will receive the same access to support and intervention resources. Therefore, the only difference between the groups is the timing that the sleep-club is delivered.

- **Intervention group 2:** Your child has been randomly selected to take part in a waiting list control group for the Sleep Club intervention. This means that they will receive the same sleep-club intervention at a later date than group 1. You will also receive the same access to free consultation. Group 2 participants will be asked to complete a one-week sleep diary on four occasions and at the same time as parents in the intervention group 1. This will be one week before the start of the Sleep Club intervention for group 1 and after the first week of the Sleep Club intervention being delivered to group 1. Then at four and eight

weeks post the sleep intervention being delivered to group 1. Once the children in group 2 start the sleep-club intervention, you will be asked to complete a six-weekly sleep diary over the course of the intervention (maximum five-minute completion time per sleep diary) which asks questions on bedtime, waking time, night time wakings and length of time awake, difficulty getting to bed, difficulty falling asleep, how easily the child fell asleep, length of time to fall asleep, and any other notes.

- You will be asked to complete a one-week sleep diary both four and eight weeks after the sleep intervention has been delivered to your child. The sleep diary takes no longer than a maximum of five minutes per day.

Your child's involvement will take place between **November 2017 – February 2018 (amended to April 2018 for the second group of schools)** and will include:

- Children attending the regular six-week sleep-club sessions at school to discuss their views and to receive psycho-educational information to promote positive sleep behaviours. This will be at a suitable time identified by their school. All participants will be differentially rewarded for any progress made each week. A Teaching Assistant may wish to observe to run similar sessions in the future.
- Children will be asked to evaluate the six-week sleep-club through a brief semi-structured questionnaire at the end of the intervention.
- Children will be asked to complete a brief questionnaire on their sleep behaviours four- and eight-week' post-intervention.
- **Parents can choose to have up to two free 30-minute telephone consultations with Sanchia De'Cage a trainee educational psychologist (in the final year of training) related to your child's sleep during the research phase, for some recommendations and strategies to be given to you. These conversations are confidential between you and the researcher (in line with any child safeguarding policies, where information may need to be shared with other professionals if a child is thought to be at risk of**

harm).

- If you provide consent to take part, you will be asked to speak to your child to let them know that you will be supporting them with their new bedtime routine, which will be good for their health and well-being. If your child appears to be worried about the changes, they can discuss their concerns with you at any time. These discussions will be supported with a free sleep manual that will be provided to you free of charge for you to keep and to refer to, to support the school-based intervention. If you have any concerns about the questions raised by your child, you may contact the researcher on the email address provided or on the telephone number provided to you.

- **Are there any risks to myself or my child taking part?** This project is not expected to involve physical risks or mental discomfort or harm. You are free to withdraw yourself, your child or your data from the study at any time you choose, with no consequences (see below for details). However, as changes in a child's behaviour (even positive changes) may involve behaviour becoming more challenging for a short period of time before it gets better. Should any concerns arise as a result of information disclosed during the sleep session, appropriate safeguarding procedures will be employed and followed. Children will also be provided with information for ChildLine should they have any concerns that they would like to discuss with a third party.

- **Can I withdraw from the research?** Your participation at all stages of the research is completely voluntary and does not involve payment. You are free to withdraw consent for yourself and your child's participation in the research at any time. Please note, that all data received for you and your child will be completely anonymised within 48 hours of receipt and any personal and identifying data will be securely destroyed (i.e. cross shredder) within this time. Therefore, any requests for your data to be withdrawn after this stage will be unable to be processed as the anonymised data will no longer be personally identifiable and linked to you.

How will you protect my data? Your forms will be kept securely, and any personally identifiable information will be destroyed at the end of the study. All

data kept in electronic format will be kept on a password-accessed computer and transferred to a secure file server within 48 hours of receipt. The results of this research may be published or reported, but any names given will be anonymised – You will not be associated in any way with any published results. To maintain confidentiality of records and your anonymity, your personally identifiable data will not be shown or discussed with any school staff or persons not affiliated with the research before your details have been completely anonymised. Your contact details are stored separately from your interview data.

What about consent? Two copies of the informed consent form are presented below. Please sign both copies and retain one for your own records.

What else do I need to know? If you choose to participate, you may withdraw at any time up until the dates given before data analysis starts. You have the right to refuse permission for the publication of any information about yourself or your child, and you may review this information prior to making this decision. Any information that you give will be used solely for the purposes of this research project, which may include publications or academic conference or seminar presentations. You will be advised if the research will be published, and you will be provided with a copy of the published paper upon request. The information that you give may be shared between the researcher(s) participating in this project in an anonymised form. The information that you provide will be treated as confidential, and the researcher(s) will make every effort to preserve your and your child's anonymity.

What is the benefit of taking part? In November 2017, parents will receive a copy of a sleep manual, which will include strategies and resources to support parents experiencing sleep difficulties for primary school-aged children. This may be accessed by emailing Sanchia De'Cage on the email address provided below. This information could help you to learn more about children's sleep from a psychological perspective and to have information about tried and tested strategies that have helped many parents of children with sleep difficulties.

Will anyone else be involved in the research? Your child's class teacher will be asked to complete a questionnaire about some aspects of your child's behaviour, their academic progress and their awareness of any medical conditions. By signing the consent form, you accept that the class teacher will disclose this information, and that it will be treated in a confidential manner.

This research has received ethical approval from the University of Exeter research committee.

Many thanks for your consideration,

Sanchia De'Cage - Yr 3 Trainee Educational Psychologist

CONSENT FORM – PARENT COPY

The impact of a behavioural sleep intervention on primary school children’s sleep behaviours and child view’s

Self-declaration: I have been fully informed about the aims and purposes of the project.

I have read and understood the above information on the sleep intervention project and the basis for my involvement. I have given been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. If applicable, the information, which I give, may be shared between any of the other researcher(s) participating in this project in an anonymised form. All information I give will be treated as confidential. The researcher(s) will make every effort to preserve my anonymity. I consent to participate in this study.

Name..... (PARTICIPANT)

Signature..... (PARTICIPANT)

Date.....

Declaration on behalf of my child: I have read and understood the above information on the sleep intervention project and the basis for my child’s involvement. I have given been given a copy of this information. I have had an opportunity to ask questions, and I have received satisfactory answers. I consent to my child named below taking part in this study.

Your relationship to the child?: _____

Child’s name.....(PARTICIPANT) Child’s date of birth.....

Parent Signature..... Date.....

[University header]

October 2017

Child Assent – INFORMATION SHEET and CONSENT FORM (PHASE 1)

[14 font size]

Exploring the impact of sleep difficulties on children’s social-emotional and behavioural well-being. Is this a role for the Educational Psychologist?

I am from the University of Exeter, and I am here to ask you to take part in a research study. My research study is to help me to learn more about primary school children and their behaviour. In this study, I want to learn about Children’s sleep, social-emotional well-being and academic outcomes. Is this a role for the Educational Psychologist?

What would you like me to do if I agree? You will be asked to answer some questions in a survey that you will be given. This is about what happens when you sleep and also about how you feel. This will take about twenty minutes to complete. On the survey, you can skip any question if it makes you uncomfortable.



Do I have to take part in this research?

You do not have to take part in this research; it is up to you. You can say no now or if you have already said yes, you can choose to change your mind at a later time. No-one will be upset with you if you decide that you do not want to be in the study.

Your grades, your school rewards and your relationship with your school, teachers and classmates will not be affected if you choose not to take part in the study or if you choose to stop taking part. If you do not take part, you can

work quietly at your desk during the surveys. You will not miss any teaching time by choosing not to take part in the research.



What will I get from being in the study? Are there any risks?

If you agree to take part in this research, there are no immediate rewards or benefits, but it may help your parents to understand children's sleep better. By taking part in this research, you will not be in any danger of being in any harm. Your contact details are stored separately from your interview data.

What will happen to the information you get about me?

Any information you put in your survey will be kept private, and your name and personal information will be anonymised, which means that it will be changed to a secret name so that other people will not know that it is from you. Before and after the study we will keep all information we collect about you on a password-protected computer.

If you want to stop doing the study, contact Sanchia De'Cage at sd489@exeter.ac.uk. If you choose to stop before we start looking at the data, you can do this up to any date on or before the 30th Jan 2018. If you contact me before this date, any answers you already gave will be destroyed. There is no penalty for stopping. If you decide that you do not want your materials in the study, but you already turned them in, just let Sanchia know.

If you have questions about the study, contact: Sanchia on sd489@exeter.ac.uk

If you have questions about your rights in the study, contact:

Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge (m.tunbridge@ex.ac.uk)

This research has received ethical approval from the University of Exeter research committee.

ASSENT FORM

By signing this form, I agree that I understand what the research is about and I agree to be in the research study described above. I know that I can stop taking part in the research at any time and that this is okay.

Name: _____

Signature: _____ **Date:** _____

You will receive a copy of this form.

**This research has received ethical approval from the University of Exeter
research committee.**

Child Assent – INFORMATION SHEET and CONSENT FORM: Phase 2 [Size
14 font]

**The impact of a behavioural sleep intervention on primary school
children's sleep behaviours and child view's**

I am from the University of Exeter, and I am here to ask you to take part in a research study. My research study is to help me to learn more about primary school children and their behaviour. In this study, I want to learn about Children's sleep, social-emotional well-being and academic outcomes. Is this a role for the Educational Psychologist?

What would you like me to do if I agree? You will be asked to take part in a new club at school that looks at children's views about sleep. You will also be asked to take part in a sleep-club that is weekly or every two weeks that provides pupils with rewards, trophies and stickers for any progress they make with their sleep behaviours. We will also spend some time talking a little bit about your views on sleep.

Do I have to take part in this research?

You do not have to take part in this research; it is up to you. You can say no now or if you have already said yes, you can choose to change your mind at a later time. No-one will be upset with you if you decide that you do not want to be in the study.

Your grades, your school rewards and your relationship with your school, teachers and classmates will not be affected if you choose not to take part in the study or if you choose to stop taking part. If you do not take part, you can work quietly at your desk during the surveys. You will not miss any teaching time by choosing not to take part in the research.



What will I get from being in the study? Are there any risks?

If you agree to take part in this research, there are no immediate rewards or benefits, but it may help your parents to



understand children's sleep better. By taking part in this research, you will not be in any danger of being in any harm. Your contact details are stored separately from your interview data. Any information that is shared in the Sleep Club will remain in the Sleep Club unless the information that is shared makes the researcher feel concerned that you or another person could be at risk of harm. You will be provided with information for ChildLine, a service that supports all children with any concerns or worries they may have. ChildLine can be contacted on 0800 11 11.

What will happen to the information you get about me?

Any information you put in your survey will be kept private and separate from your name, and any personal information will be anonymised within 2 days (48 hours). This means that it will be changed to secret information so that other people will not know that it is from you. Before and after the study we will keep all information we collect about you on a password-protected computer and transferred to a secure file server within 48 hours of receipt.

If you want to stop doing the study, you can tell your parent/carer or teacher, or contact Sanchia De'Cage at sd489@exeter.ac.uk. You can choose to stop taking part in the research at any time. You can also ask for your information to be destroyed and not to be used at any time before we anonymise it and make it completely private. This will mean that any answers you have already given will not be used. There is no penalty for stopping. If you decide that you do not want your materials in the study, but you already turned them in, just let Sanchia know.

If you have questions about the study, contact Sanchia on sd489@exeter.ac.uk

If you have questions about your rights in the study, contact: Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge (m.tunbridge@ex.ac.uk)

This research has received ethical approval from the University of Exeter research committee. Thank you for reading this, Sanchia De'Cage 😊

Assent FORM – Child copy

The impact of a behavioural sleep intervention on primary school children's sleep behaviours and child view's

By signing this form, I agree that I understand what the study is about and I agree to be in the study described above. I understand that if I am worried about this that I can talk to my parent, teacher or to Sanchia. I know that I can stop taking part in the research at any time, and that this is okay.

Name: _____ (PARTICIPANT)

Signature: _____ (PARTICIPANT) **Date:** _____

Appendix 9. Tests of normality, skewness and kurtosis data

	Skewness			Kurtosis		
	Statistic	Std. Error	Zs	Statistic	Std. Error	Zk
Children's Positive and Negative Feelings						
Q1	-1.141	.491	-2.32	.339	.953	0.36
Q2.	-.533	.491	-1.09	-.750	.953	-0.79
Q3	-.269	.491	-0.55	-1.062	.953	-1.11
Q4	-1.223	.491	-2.49	.983	.953	1.03
Q5. REV	-1.294	.491	-2.64	.247	.953	0.26
Q6. REV	-.545	.491	-1.11	-.461	.953	-0.48
Q7. REV	.081	.491	0.16	-1.157	.953	-1.21
Q8	-.875	.491	-1.78	.111	.953	0.12
Q9	-.811	.491	-1.65	-.206	.953	-0.22
Q10	-2.085	.491	-4.25	3.538	.953	3.71
Children's Sleep Self-Report						
Q1.	-.264	.491	-0.54	.136	.953	0.14
Q2.	-.609	.491	-1.24	-1.802	.953	-1.89
Q3.	.397	.491	0.81	-2.037	.953	-2.14
Q4. REV	-.547	.491	-1.11	-.528	.953	-0.55
Q5. REV	.693	.491	1.41	-1.208	.953	-1.27
Q6. REV	.193	.491	0.39	-1.882	.953	-1.97
Q7.	-.193	.491	-0.39	-1.882	.953	-1.97
Q8. REV	-.597	.491	-1.22	-1.485	.953	-1.56
Q9.	-.781	.491	-1.59	-.887	.953	-0.93
Q10.	.413	.491	0.84	-1.036	.953	-1.09
Q11. REV	-.114	.491	-0.23	-.320	.953	-0.34
Q12.	-.293	.491	-0.60	-1.907	.953	-2.00
Q13.	.574	.491	1.17	-1.282	.953	-1.35
Q14.	.485	.491	0.99	-1.532	.953	-1.61
Q15.	.175	.491	0.36	-1.437	.953	-1.51
Q16.	.175	.491	0.36	-1.437	.953	-1.51
Q17.	.839	.491	1.71	-1.436	.953	-1.51
Q18.	-.304	.491	-0.62	-.973	.953	-1.02
Q19.	-.187	.491	-0.38	-1.687	.953	-1.77

Q20.	.000	.491	0.00	-1.151	.953	-1.21
Q21.	.736	.491	1.50	-.312	.953	-0.33
Q22.	.999	.491	2.03	-.320	.953	-0.34
Q23.	.000	.491	0.00	-1.734	.953	-1.82
Q24.	.000	.491	0.00	.014	.953	0.01
Q25.	1.341	.491	2.73	.378	.953	0.40
Q26. REV	.175	.491	0.36	-1.437	.953	-1.51
Academic self-report						
	-.969	.491	-1.97	2.124	.953	2.23
Teacher-rated academic progress made overall						
	-.619	.491	-1.26	-1.044	.953	-1.10
Teacher attainment total						
	-.675	.491	-1.37	-.506	.953	-0.53
TDSQ						
Q1	3.059	.491	6.23	8.085	.953	8.48
Q2	1.773	.491	3.61	1.250	.953	1.31
Q3	3.059	.491	6.23	8.085	.953	8.48
Q4	.203	.491	0.41	-.847	.953	-0.89
Q5	2.394	.491	4.88	5.459	.953	5.73
Q6	1.666	.491	3.39	2.154	.953	2.26
Q7	1.993	.491	4.06	3.502	.953	3.67
Q8	2.911	.491	5.93	8.432	.953	8.85
Q9	4.690	.491	9.55	22.000	.953	23.08
Q10	1.773	.491	3.61	1.250	.953	1.31
Teacher SDQ						
Q1.	.196	.491	0.40	-2.168	.953	-2.27
Q2.	1.221	.491	2.49	.441	.953	0.46

Q3.	1.033	.491	2.10	.043	.953	0.05
Q4.	-1.149	.491	-2.34	.514	.953	0.54
Q5.	1.666	.491	3.39	2.154	.953	2.26
Q6.	.574	.491	1.17	-1.282	.953	-1.35
Q7. REV	.652	.491	1.33	-.992	.953	-1.04
Q8.	.485	.491	0.99	-1.532	.953	-1.61
Q9.	-.569	.491	-1.16	-.756	.953	-0.79
Q10.	1.660	.491	3.38	1.687	.953	1.77
Q11.REV	.609	.491	1.24	-1.802	.953	-1.89
Q12.	1.388	.491	2.83	.176	.953	0.18
Q13.	.704	.491	1.43	-.682	.953	-0.72
Q14. REV	.847	.491	1.73	-.538	.953	-0.56
Q15.	.497	.491	1.01	-1.714	.953	-1.80
Q16.	.597	.491	1.22	-1.485	.953	-1.56
Q17.	-.547	.491	-1.11	-.528	.953	-0.55
Q18.	3.059	.491	6.23	8.085	.953	8.48
Q19.	1.388	.491	2.83	.176	.953	0.18
Q20.	-.095	.491	-0.19	-1.825	.953	-1.92
Q21. REV	.000	.491	0.00	-1.484	.953	-1.56
Q22.	2.202	.501	4.40	3.138	.972	3.23
Q23.	.918	.491	1.87	-.724	.953	-0.76
Q24.	1.221	.491	2.49	.441	.953	0.46
Q25. REV	.377	.491	0.77	-1.540	.953	-1.62
Parent SDQ						
Q1	-.933	.491	-1.90	.025	.953	0.03
Q2	.781	.491	1.59	-.887	.953	-0.93
Q3	.091	.491	0.19	-1.606	.953	-1.69
Q4	-1.660	.491	-3.38	1.687	.953	1.77
Q5	.352	.491	0.72	-1.292	.953	-1.36
Q6	.652	.491	1.33	-.992	.953	-1.04
Q7. REV	.114	.491	0.23	-.320	.953	-0.34
Q8	.377	.491	0.77	-1.540	.953	-1.62

Q9	-1.399	.491	-2.85	-.057	.953	-0.06
Q10	.304	.491	0.62	-.973	.953	-1.02
Q11. REV	-1.033	.491	-2.10	.043	.953	0.05
Q12	1.993	.491	4.06	3.502	.953	3.67
Q13	.933	.491	1.90	.025	.953	0.03
Q14. REV	.196	.491	0.40	-2.168	.953	-2.27
Q15	.569	.491	1.16	-.756	.953	-0.79
Q16	.352	.491	0.72	-1.292	.953	-1.36
Q17	-1.773	.491	-3.61	1.250	.953	1.31
Q18	1.666	.491	3.39	2.154	.953	2.26
Q19	1.097	.491	2.23	-.887	.953	-0.93
Q20	-.274	.491	-0.56	-1.509	.953	-1.58
Q21. REV	.114	.491	0.23	-.320	.953	-0.34
Q22	2.278	.491	4.64	3.498	.953	3.67
Q23	1.221	.491	2.49	.441	.953	0.46
Q24	.413	.491	0.84	-1.036	.953	-1.09
Q25. REV	.154	.491	0.31	-1.106	.953	-1.16
CSHQ						
Q1	1.428	.491	2.91	.976	.953	1.02
Q2	1.924	.491	3.92	2.631	.953	2.76
Q3	.091	.491	0.19	-1.606	.953	-1.69
Q4.	.274	.491	0.56	-1.509	.953	-1.58
Q5.	.381	.501	0.76	-1.363	.972	-1.40
Q6	-.175	.491	-0.36	-1.437	.953	-1.51
Q7	3.059	.491	6.23	8.085	.953	8.48
Q8	.597	.491	1.22	-1.485	.953	-1.56
Q9	.781	.491	1.59	-.887	.953	-0.93
Q10	1.064	.491	2.17	-.498	.953	-0.52
Q11	1.221	.491	2.49	.441	.953	0.46
Q12	1.428	.491	2.91	.976	.953	1.02
Q13	.175	.491	0.36	-1.437	.953	-1.51
Q14.	.999	.491	2.03	-.320	.953	-0.34

Q15.	1.090	.491	2.22	-.696	.953	-0.73
Q16.	2.911	.491	5.93	8.432	.953	8.85
Q17.	1.220	.491	2.48	-.202	.953	-0.21
Q18.	1.773	.491	3.61	1.250	.953	1.31
Q19.	.704	.491	1.43	-.682	.953	-0.72
Q20.	.460	.491	0.94	-1.310	.953	-1.37
Q21.	2.278	.491	4.64	3.498	.953	3.67
Q22.	3.621	.491	7.37	13.270	.953	13.92
Q23.	1.993	.491	4.06	3.502	.953	3.67
Q24.	.196	.491	0.40	-2.168	.953	-2.27
Q25.	2.278	.491	4.64	3.498	.953	3.67
Q26.	2.394	.491	4.88	5.459	.953	5.73
Q27.	4.690	.491	9.55	22.000	.953	23.08
Q28.	3.621	.491	7.37	13.270	.953	13.92
Q29.	-.196	.491	-0.40	-2.168	.953	-2.27
Q30.	.693	.491	1.41	-1.208	.953	-1.27
Q31.	.095	.491	0.19	-1.825	.953	-1.92
Q32.	.847	.491	1.73	-.538	.953	-0.56
Q33.	.091	.491	0.19	-1.606	.953	-1.69

(n= 22)

Appendix 10. Sleep diary exemplar

Sleep Diary

This sleep diary will take 3-4 minutes maximum to complete per day and will need to be sent back the following week. Please complete the sleep diary daily.

Child's full name: _____ Person collecting data: _____

Please collect the following information for one week. Each night, indicate (1) the initial time you put your child to bed, (2) the time your child actually fell asleep after being put to bed, (3) the time of each instance of waking, and (4) what your child did during the waking and what you did to respond to your child. Also describe the length and nature of any naps that occurred that day.

Please return to your child's teacher the following week. Alternatively- please send a photo of both sides in an email to: sd489@exeter.ac.uk

Day/Date Wk beginning: ____/____/____	Time put to bed (am or pm?)	Time fell asleep (am or pm?)	Time awoke (am or pm?)	Describe night-time waking (e.g. time awoke, how long awake)	Detail any reasons for night time waking (e.g. stress, worry, comfort, noise, temperature, light)
Mon					
Tue					
Wed					
Thurs					
Fri					
Sat					
Sun					

*Adapted from Durand, V. M. (1998). *Sleep Better*. Baltimore: Paul H. Brooks.

Thank you

Remember that you can arrange two free 30-minute consultations with the researcher, who is in her final year of training to become a doctor of educational and child psychology. To arrange this please email sd489@exeter.ac.uk

Please also see the Sleep Me Happy website at www.smhappy.wixsite.com/smhappy for more sleep information, tips and support.

Appendix 11. Semi-structured interview questions

- Can you tell me about X's (child's) sleep?
- How does X's (child's) sleep impact on him/her?
- What do you think may be causing or contributing to X's (child's) sleep difficulties?
- When did you first notice that X (child) had difficulties with his/her sleep?
- Can you tell me about a time when X (child) did not have difficulties with his/her sleep? What was different about this time?
- Are the sleep difficulties present in all environments, such as if X (child) goes to a friend or family sleepover?
- What strategies have you tried so far, and what has been the outcome of these strategies? Have you tried anything else?
- What would you like to see as an outcome of your involvement with this consultation for X (child)?
- Can you tell me about X's (child's) development as a child, in terms of meeting his/her milestones?
- Do you have any further questions?



Sleep happy, be happy!

Sleep Club

Session Manual

Authorised for use by: _____ School

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Created by Sanchia De'Cage

Final year Trainee Educational Psychologist,
Contributing to doctoral research: 2013 - 2018



Sleep happy, be happy!

Approximately 40% of children will experience problems with their sleep at some point during their childhood.

Poor sleep can have a number of detrimental effects on children's development and progress. Researchers have found that even as little as one hour less of sleep over a period of four days results in daytime tiredness, emotional regulation difficulties, and cognitive difficulties (with short-term memory and working memory, attention, and math fluency). It affects academic outcomes, social and emotional wellbeing, behaviour, height and weight development.

The Sleep Club aims to support children to overcome sleep difficulties by providing psycho-educational sessions underpinned by cognitive behavioural and solution focused approaches, parental contract psychology, goal setting and social reinforcement, behavioural reward systems, and Acceptance and Commitment Therapy (ACT) techniques.

Parents can be supported by the accompanying Sleep Me Happy website that provides tips, resources and information to support the Sleep Club. This can be found at www.unhcamerica.com/unhcamerica



Introduction

Welcome to the Sleep Club!

The Sleep Club is a school based, six-week intervention that has been designed for primary school-aged children between the ages of 7 – 11. This manual provides information on how to deliver the sleep club programme and the resources needed.

As the facilitator of the Sleep Club, please familiarise yourself with the session requirements and materials in advance of each session. It will also be important to ensure that you have reviewed the sleep diaries prior to each session to ensure that you are aware of where the most progress has been achieved and by whom.

Each session is intended to be 25 minutes long. As this is not a long time, it is important to follow the estimated time guides and to impress upon the children the importance of listening for when it is time to move on.

It is recommended that you evaluate the impact of the child's sleep. This can be done through weekly parental sleep diaries (pre-, during- and post- intervention), by the sleep-gate, and by an independent person not involved in the session issuing a brief questionnaire to the children at the end of the final session. The children could also be assessed using the Children's Sleep Self Report (CSR) scale before and after the intervention to assess any changes in their scores.

Programme objectives

By the end of the programme children will:

- Have a greater understanding about sleep
- Understand how their behaviours may affect their sleep.
- Understand how sleep can affect their behaviour and emotions
- Understand how their sleep can affect their learning
- Understand how to use relaxation and breathing exercises to help them to relax and de-stress
- Develop greater awareness of positive sleep-related behaviours and problem solving strategies to practise at home

Materials

It is recommended that the following items are sourced to support the delivery of the sleep club sessions:

- Computer/laptop or tablet
- Flipchart paper and pens
- A4 paper
- Colouring pens/pencils
- Pipe cleaners
- 3d model of the brain
- A medium sized ball
- Progress road map for weekly planning/target setting
- Weekly rewards (provided by the facilitator)
- Laminated, Sleep solution cards, Sleep memory game, Childline cards, Calm cards, Homework cards, The brain and neuron sheets.
- Template of the human body
- Number line
- Star of the week certificate
- Certificate of participation

Outline for Session 1

Session aim: introduces the sleep club to the children, sets the ground rules, and records their baseline knowledge of their sleep.

You will need: Access to a computer/laptop/tablet and the internet, flip chart paper, pens, stickers, and a membership item that unifies the group, access to the sleep well be well video clip, rewards.

Part I: Introductions and programme overview: Estimated time: 5 – 7 minutes

Introductions: Once all of the children have arrived and settled in. Each member tells the group:

- Their name
- One thing that they know about sleep
- One thing that they would like to improve about their sleep
- One thing that they really enjoy doing in their spare time.

Programme overview: Tell the children that we will be meeting once per week for a short time as members of the sleep club. The aim of the sleep club is to work with children to help them to learn more about the effect of sleep on children and their daily lives. All children will receive a weekly reward for taking part in the sleep club, and they may achieve an additional weekly bonus for making progress with their sleep behaviours.

Part II: Ground rules: (Estimated time 3 minutes)

Ground rules: The ground rules for the group would have been written in advance on some flipchart paper that can be stuck up in the room every session. Write 4 – 5 ground rules that cover:

- **Listening:** We will show that we are listening by looking at the person talking, keeping our hands still and using our ears;
- **Respect:** One person talks at a time, we put our hands up, we don't laugh at someone else's opinion or make rude comments;
- **Kindness:** There is no such thing as a silly question;
- **Privacy:** The things that group members say in the group stay in the group and are not repeated to other children who are not in the sleep club.

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Outline for Session 2

Session aim: uses a solution-focussed and personal construct psychology approach to explore children's views and what they would hope to achieve by taking part in the sleep club. The facilitator can record the key points mentioned in this session onto some flip-chart paper.

You will need: Access to a computer/laptop/tablet and the internet, flip chart paper, pens, stickers, one number line per child, sleep support cards, rewards.

Part I: Welcome back and reminder of the sleep club rules (estimated time: 30 seconds)

Remind the children about the sleep club rules on the wall.

Part II: Mindful minute exercise video (estimated time: 1 minute)
<https://www.youtube.com/watch?v=2M00Kne1s4>

- o Advise the children that we will be practising an activity that can help them with relaxation and focus.

Part III: Discussion (estimated time: 10 minutes)

During this activity, we're going to talk about what you think about sleep and bedtimes. When you receive the ball, then it's your turn to tell the sleep club what you think to the questions I ask:

- o Using the sleep chart, share what the research says about what times the children should go to bed for their age, how much sleep they need, and ask their views on it.

Scaling: Children are provided with number scale with happy/sad emoticons at either end of the scale, and markers to record their responses.

- o Using the scale, draw a star to link to a number that shows how you feel when you are in bed?
- o Using the scale, draw a square to show how you feel when you wake up in the morning.
- o Using the scale, draw a cross to show how you feel about your sleep.
- o Using the scale, draw a circle to show how you want to feel about your sleep in the future.
- o What difference would it make to you if your sleep were at this level?
- o How would you know that your sleep is better? What would you notice?
- o How would you feel?

Outline for Session 1, continued.

- **Confidentiality and ethical statement:** Remind all children that they are here voluntarily and can leave the sleep club at any time. Let them know that any information that is shared in the sleep club will remain in the sleep club, unless the information that is shared makes the facilitator feel concerned that, that child or another person could be at risk of harm.

Does anyone want to add another ground rule?

Part III: Mindful minute exercise video (estimated time: 1 minute)
<https://www.youtube.com/watch?v=2M00Kne1s4>

- o Advise the children that we will be practising an activity that can help them with relaxation and focus.

Part IV: Sleep quiz (estimated time: 5 minutes)

Sleep quiz handed to all children to complete. Tell the children that we will go over the answers to the quiz on the last session to see if any of their answers change after coming to the sleep club for a while.

Part V: Sleep diary, reward time and target setting (estimated time: 10 minutes)

- o A review of the sleep diaries. Social praise given for positive aspects noted on the sleep diaries
- o Praise given to all children for taking part in the sleep club (specific rather than generic praise).
- o Reward time for the children to be rewarded with items of equal value. As this is the first week/baseline of the intervention, we want to ensure that all children receive the same or a similar item.
- o If you could wave a magic wand and change one thing about your sleep to make it better, what would it be?
- o Set overall goal, and then set a smaller target for how they can take one step to improve their sleep behaviours on the route-map plan.
- o Explain to children that the closer they get to achieving their goals each week, they will receive a reward of greater value and/or more than one reward for making the most improvement.

Homework: Sleep card memory game – to play with someone before the next session.

Outline for Session 2, continued.

For each response, ask the children:

- o What could help you to move up one on the scale to make things better for you? You may need to provide 2 – 3 options to see how they feel about them if they struggle with this.

Explore the children's responses through a range of open questions (questions that do not match with a yes, no, or one word response). The questions asked lead on from what the child says, however, some suggestions of questions may include:

- What makes you feel like this?
- When do you not feel like this?
- When do you mostly feel this way? (E.g. weekends, weekdays)
- How does it feel to have a bad night's sleep?
- What would you like to change about your sleep?
- What would be different if the sleep 'problem' didn't exist?
- Who do you know who has better sleep than you?
- Who disturbs your sleep?
- What do you do when you wake up at night?
- Who helps you if you feel scared to go to bed?
- How do they help you?
- How do you think their sleep makes them feel?
- What could help you to have better sleep?

Part IV: Child-friendly strategies to overcome sleep-related concerns (estimated time 4 minutes)

In response to what the children say, hand out the appropriate sleep support card(s) that gives them key tips to work on the difficulties that they face, and things they can do to help themselves. Provide two to three cards to each child and check that they understand the sleep tips provided.

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Outline for Session 2, continued.

Part V: Sleep diary, reward time and target setting (estimated time: 10 minutes)

- o A review of the sleep diaries. Social praise given for positive aspects noted on the sleep diaries.
- o Review any difficulties with working towards target set last week. What are the competing motivations?
- o Praise given to all children for taking part in the sleep club, for their contributions and for making their individual progress in X areas (specific rather than generic praise).
- o If you could wave a magic wand and change one thing about your sleep to make it better, what would it be?
- o Target setting on how they can take one step to improve their sleep behaviours on the route-map plan. Consider if the child needs a different sleep support card.
- o This week, children are differentially rewarded for the progress that they have made. A higher value reward and/or a greater number of rewards are given to the child who has made the most progress. This child gets the first pick of the rewards on offer and receives the 'Sleep star of the week' certificate.
- o Explain to children that the closer they get to achieving their goals each week, they will receive a reward of greater value and/or more than one reward for making the most improvement.

Outline of session 3, continued.

Part V: Sleep diary, reward time and target setting (estimated time: 10 minutes)

- o A review of the sleep diaries. Social praise given for positive aspects noted on the sleep diaries.
- o Review any difficulties with working towards target set last week. What are the competing motivations?
- o Praise given to all children for taking part in the sleep club, for their contributions and for making their individual progress in X areas (specific rather than generic praise).
- o If you could wave a magic wand and change one thing about your sleep to make it better, what would it be?
- o Target setting on how they can take one step to improve their sleep behaviours on the route-map plan. Consider if the child needs a different sleep support card.
- o This week, children are differentially rewarded for the progress that they have made. A higher value reward and/or a greater number of rewards are given to the child who has made the most progress. This child gets the first pick of the rewards on offer and receives the 'Sleep star of the week' certificate.
- o Explain to children that the closer they get to achieving their goals each week, they will receive a reward of greater value and/or more than one reward for making the most improvement.

Homework card - Thinking activity: Ask the children to think about how they feel when they wake up every morning and before they go to bed.

****Remind the children that this is session three and that we are now halfway through the Sleep Club sessions.****

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Outline for Session 3

Session three: explores what the research says about children's sleep and the impact of technology on sleep. It also starts to link children's thoughts, feelings and sleep behaviours using a cognitive behavioural approach. The facilitator can record the key points mentioned in this session onto some flip-chart paper.

You will need: Access to a computer/laptop/tablet and the Internet, flip chart paper, pens, stickers, sleep sorting activity, thoughts, feelings and behaviour activity, rewards.

Part I: Welcome back and reminder of the sleep club rules (estimated time: 30 seconds)

Remind the children about the sleep club rules on the wall.

Part II: 4-7-8 breathing exercise video (estimated time: 1 minute)

<https://www.youtube.com/watch?v=8U2Bnlw550E>

- o Advise the children that we will be practising an activity that can help them to calm down if they feel worried or upset.

Part III: Sleep Sorting activity (estimated time: 7 minutes)

The children work together to sort the blue cards under the set headings. Once sorted the facilitator reviews the children's answers with them and reads the research related answers from the orange cards.

Part IV: Thoughts, feelings, and sleep behaviours (estimated time: 7 minutes)

This activity is meant to be a quick fired, fast paced activity to help to keep the children on task and engaged. Throw a ball to each child when it's their turn to select and to sort an item.

The children sort a number of pre-labelled items that contain statements relating to thoughts, feelings and sleep-related behaviours.

The list includes: angry, sad, happy, worried, scared, going to bed, taking a bath, having a snack, having dinner, playing games, I don't sleep well, I don't like to sleep, I feel stressed, I'm scared of nightmares.

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Outline for Session 4

Session four: explores what the research says about children's sleep and learning. It expands on the previous thoughts, feelings and sleep behaviours activity by using a cognitive behavioural approach. The facilitator can record the key points mentioned in this session onto some flip-chart paper.

You will need: Access to a computer/laptop/tablet and the Internet, flip chart paper, pens, stickers, a brain model and picture, pipe cleaners, rewards.

Part I: Welcome back and reminder of the sleep club rules (estimated time: 30 seconds)

Remind the children about the sleep club rules on the wall.

Part II: 4-7-8 breathing exercise video (estimated time: 1 minute)

<https://www.youtube.com/watch?v=8U2Bnlw550E>

- o Advise the children that we will be practising an activity that can help them to calm down if they feel worried or upset.

Part III: Thoughts, feelings, behaviour activity 2 (estimated time: 7 minutes)

This activity uses the flipchart to use one child's experience to work out the link between a situation, what they thought, how they felt, what they did and problem solving the situation to see if changes in perception can be made. This will be input onto a pre-drawn chart on the flipchart, which follows the following format:

Situation	Thoughts	Feelings	Behaviour	Identifying problems

Ask the chosen child to tell you about a time at school that didn't go so well because they were tired.

- o **Situation** - What happened? When was it? What were you doing? Who were you with?
- o **Thoughts** - What were you thinking?
- o **Feelings** - How did you feel? (Provide some suggestions to choose from if they struggle)
- o **Behaviour** - What did you do?

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Outline of session 4, continued.

Part IV: Learning, sleep and the brain (estimated time: 6 minutes)

Exploring what the research says about the brain, learning and sleep. Use the brain model and the brain picture to demonstrate the areas of the brain that is involved in learning and sleep and allow the children to pass it around. Explore what the research says about sleep loss and memory, attention, poor memory of words, and maths.

- Scientists have found that sleep helps to stop us getting sick and it can keep our bodies healthy.
- Does anyone in here like to get into trouble? Children who don't sleep enough tend to have more difficulties with their mood and feelings and may tend to get into more trouble because of poor behaviour, hyperactivity and not being able to pay attention. Does that surprise you?
- Who wants to do well in school? Well it has been found that children who don't sleep enough don't get the highest grades. Why do you think that may be?
- Section A - Frontal lobe - controls lots of things important to learning, including memory, language, friendship skills, problem solving, decision making and the emotions.
- Section E - Medulla Oblongata - can help to balance and control your breathing and heart rate.
- Section F - The Pons - wakes you up from sleeping and is responsible for dreaming.
- Did you know that the more sleep that you get, the better you are able to grow in height. When you sleep the 'height hormone' is released by the pituitary gland, which helps your bones and body to grow.
- Section I - The Hypothalamus - helps to balance body temperature, thirst, hunger and your mood.

Part V: Neurons and learning (estimated time: 6 minutes)

Show the children the ready-made neurons made with the pipe cleaners and ask them to listen to the following information and demonstrate what happens in the brain when the neurons are firing and learning takes place. Then to show what happens with the neurons when a person is tired. Ask them to explain in their own words.

Provide the children with their own pipe cleaners and explain that some research has suggested that when we haven't had enough sleep, we might affect ('lose' for older children) some brain cells.

Outline of session 5

Session five, expands more upon the previous thoughts, feelings and sleep behaviours activity by using a cognitive behavioural approach. The facilitator can record the key points mentioned in this session onto some flip-chart paper.

You will need: The progressive relaxation exercise, plain sheets of paper (1x number of children), pens, stickers, colouring pens/pencils, the person outline templates (2 x number of children), rewards.

Part I: Welcome back and reminder of the sleep club rules (estimated time: 30 seconds)

Remind the children about the sleep club rules on the wall.

Part II: Progressive relaxation exercise (estimated time: 3 minutes)

- Advise the children that we will be practising an activity that can help their bodies to relax and to unwind.

Part III: Acceptance and Commitment Therapy metaphor exercise (estimated time: 7 minutes)

- I want you to look around the room and notice all of the things about it. Look at the floor, the ceiling, the furniture and people in it.
- Now on one side of the paper write down three things that you think about your own sleep.
- On the other side of the paper, write down three things that keep you up late, then put the paper aside.
- Now I want you to use your imagination to pretend that your hands are 'you without enough sleep'.
- Copy the and hold your hands together. Hold your palms open like this as if they're open like a book.
- I'd like you to keep your hands touching and to slowly raise your hands up in front of your face until they cover your eyes.
- Look around the room now and the world around you through the gaps in between your fingers and notice how this affects your view of the world.
- What would it be like going around all day with your hands covering your eyes like this? Would it help or limit you? How much would you miss out on?

So your lack of sleep does not completely stop you from living and getting around. But does it make it more difficult for you? How? (E.g. you may be slower, may make mistakes, may not see things properly, you may have accidents, it may stop you from being a good friend, etc.).

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Outline for session 4, continued.

- This is because if we stay awake too long, the neurons don't have enough time to rest and repair, which will damage them and can cause some parts of the brain to shrink slightly (on the brain model it is the right superior frontal cortex - the green side behind the labelled cerebellum).
- But don't worry; we have over 100 billion neurons in the brain that help to coordinate our bodies like a computer.
- If you aren't happy with how quickly you are progressing on a game, or how you are able to learn a new skill, it may be because you need to work on your sleep. If you are tired it can take much longer than it should do for you to learn something, or to reach the next level on your computer game.

Part VI: Sleep diary, reward time and target setting (estimated time: 10 minutes)

- A review of the sleep diaries. Social praise given for positive aspects noted on the sleep diaries.
- Review any difficulties with working towards target set last week. What are the competing motivations?
- Praise given to all children for taking part in the sleep club, for their contributions and for making their individual progress in X areas (specific rather than generic praise).
- If you could wave a magic wand and change one thing about your sleep to make it better, what would it be?
- Target setting on how they can take one step to improve their sleep behaviours on the route-map plan. Consider if the child needs a different sleep support card.
- This week, children are differentially rewarded for the progress that they have made. A higher value reward and/or a greater number of rewards are given to the child who has made the most progress. This child gets the first pick of the rewards on offer and receives the 'Sleep star of the week' certificate.
- Explain to children that the closer they get to achieving their goals each week, they will receive a reward of greater value and/or more than one reward for making the most improvement.

Outline for Session 5, continued.

Part IV: Person outline activity (estimated time: 8 minutes)

Introduce the person templates and show the children the different parts of the body.

- Tell the children that different people feel different emotions and sensations in their body related to sleep or lack of sleep, and you'd like them to be creative in showing how it might feel for someone that they know by using the template.
- The colours that they link to those feelings may also differ.
- Ask the group to come up with a name for the template that has sleep loss, and a name for the template that has had enough sleep.
- Ask the children how their character feels when they have had a good night's sleep and to draw this on one of the 'people templates'.
- Now ask them how their character feels when they have had a bad night's sleep or not enough sleep and to draw and colour this onto the people templates.
- Give each child time to present each of their templates.

Part V: Sleep diary, reward time and target setting (estimated time: 8 minutes)

- A review of the sleep diaries. Social praise given for positive aspects noted on the sleep diaries.
- Review any difficulties with working towards target set last week. What are the competing motivations?
- Praise given to all children for taking part in the sleep club, for their contributions and for making their individual progress in X areas (specific rather than generic praise).
- If you could wave a magic wand and change one thing about your sleep to make it better, what would it be?

Outline for Session 5, continued.

- o Target setting on how they can take one step to improve their sleep behaviours on the route-map plan. Consider if the child needs a different sleep support card.
- o This week, children are differentially rewarded for the progress that they have made. A higher value reward and/or a greater number of rewards are given to the child who has made the most progress. This child gets the first pick of the rewards on offer and receives the 'Sleep star of the week' certificate.
- o Explain to children that the closer they get to achieving their goals each week, they will receive a reward of greater value and/or more than one reward for making the most improvement.

****Remind the children that next week is the final Sleep Club session.****

Session 6 continued.

- o Using the scale, draw a star to show how you feel when you are in bed now?
- o Using the scale, draw a square to show how you feel when you wake up in the morning now.
- o Using the scale, draw a cross to show how you feel about your sleep now.

Part VI: Sleep diary, reward time and target setting (estimated time: 8 minutes)

- o A review of the sleep diaries. Social praise given for positive aspects noted on the sleep diaries
- o Review any difficulties with working towards target set last week. What are the competing motivations?
- o Praise given to all children for taking part in the sleep club, for their contributions and for making their individual progress in X areas (specific rather than generic praise).
- o Brief discussion of how they can continue to improve their sleep behaviours.
- o Children are differentially rewarded for the progress that they have made. A higher value reward and/or a greater number of rewards are given to the child who has made the most progress. This child gets the first pick of the rewards on offer and receives the 'Sleep star of the week' certificate.
- o All children receive a certificate for taking part.
- o Final goodbyes.

FINAL ASSESSMENT: An independent person who has not taken the Sleep Club Sessions should then deliver the final assessment of the programme to avoid any results being biased (e.g. children giving a response that they think the adult wants to hear due to their relationship with them).

Outline for Session 6

****Remind the children that this is the final Sleep Club session.****

Session 6a: measures the difference in sleep knowledge between first and last sessions to assess children's sleep knowledge. It also explores the impact of the bedroom environment on children's sleep. The facilitator can record the key points mentioned in this session onto some flip-chart paper.

You will need: The progressive relaxation exercise, flip chart paper, pens, stickers, human templates, rewards.

Part I: Welcome back and reminder of the sleep club rules (estimated time: 30 seconds): Remind the children about the sleep club rules on the wall.

Part II: Progressive relaxation exercise (estimated time: 3 minutes)

- o Advise the children that we will be practising an activity that can help their bodies to relax and to unwind.

Part III: Sleep quiz (estimated time: 5 minutes)

Sleep quiz handed to all children to complete. Go over the answers to the quiz, children self-mark and see if they have scored higher than in the first week.

Part IV: Sleep environment and foods (4 minutes)

This activity is meant to be a quick fired, fast paced activity to help to keep the children on task and engaged. Throw a ball to children when it's their turn to select and to sort an item.

- o The children chose visual pictures of ideal and non-ideal sleeping conditions and different foods and drink to sort them into piles of 'helps sleep' doesn't help sleep'.
- o The facilitator explains why each item belongs in each pile and the impact that it has on sleep.

Part V: Review of targets and self-assessed progress (5 minutes)

- o **Scaling:** Bring out each child's pre-annotated number scale with happy/sad emoticons at either end of the scale, and red markers to record their responses.
- o Review the target sheets and ask the children to record one thing that they will work on going forward.

Safeguarding note

Given the nature of the sleep club sessions, it is possible that a child could disclose something of concern to an adult or to children about their own experiences.

If a child makes a disclosure:

Follow the safeguarding procedures of your institution, which may include:

- o Reassure the child that they have done the right thing by talking to someone
- o Tell the child what you will do with the information to keep them safe
- o Tell the child who else will need to be told
- o Let the child tell their story and record what they say in their own words. Avoid asking leading questions.
- o Ask the child what they would like to happen as a result of what they have said. Avoid making promises that you cannot keep.
- o Keep your own record of what was disclosed to you.
- o Follow the safeguarding procedures of the school by speaking directly to the safeguarding lead and follow up with the schools safeguarding officer about what actions have been taken as a result of your report.
- o Inform your line manager.

All child participants will be reminded at the beginning of each sleep-club session that they can choose whether to withdraw from the group at any time.



Sleep Club Resources

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Suggested pre- and Post- intervention assessments

Depending on the intention of the research, some of the following materials may be useful to assess the outcomes of the Sleep Club Intervention.

To assess children's perceptions of their sleep: The Sleep Self Report (SSR; Owens, Maxim, Noble, McGuinn, and Msaif, 2000). A short questionnaire previously used in research assesses sleep patterns and sleep-related problems. This survey explores environmental (needing comforters or people present), physiological (anxiety, fears, pain) and behavioural (sleep quantity, night wakings, difficulty falling asleep) factors that may have an impact on sleep and can highlight if sleep difficulties may be present from the child's perspective.

The SSR can be accessed from the following link by using the downloads tab:

www.sleepmehappy.com/srhappy

To assess parents' perceptions of their children's sleep: The Children's Sleep Habits Questionnaire (CSHQ): The CSHQ has previously been used in research and is a 45-item retrospective parent report instrument used to describe sleep habits and identify both behaviourally and medically based sleep problems in school-aged children (Owens, Spitzer, McGuinn, 2000).

The CSHQ can be accessed from the following link by using the downloads tab:

www.sleepmehappy.com/srhappy

To assess overall wellbeing

Parent, child and teacher ratings of a child's strength and difficulties can be measured by using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1998).

The SDQ can be accessed from the following link:

<http://www.sdqinfo.com/2r/2rinfo/2r02r>

Additional assessments include:

- **Sleep diaries** to measure changes in the child's sleep
- **The Sleep Quiz** to measure changes in children's sleep knowledge.

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Recommended sleep durations by age

Age	Recommend	May be appropriate	Not recommended
Newborns	14 to 17 hours	11 to 13 hours	Less than 11 hours
0 - 3 months	12 to 15 hours	18 to 19 hours	More than 19 hours
Infants	11 to 14 hours	10 to 11 hours	Less than 10 hours
4 - 11 months	10 to 13 hours	16 to 18 hours	More than 18 hours
Toddlers	9 to 11 hours	9 to 10 hours	Less than 9 hours
1 - 2 years	10 to 13 hours	15 to 16 hours	More than 16 hours
Pre-schoolers	9 to 11 hours	8 to 9 hours	Less than 8 hours
3 - 5 years	10 to 13 hours	14 hours	More than 14 hours
School aged children	9 to 11 hours	7 to 8 hours	Less than 7 hours
6 - 13 years	8 to 10 hours	12 hours	More than 12 hours
Teenagers	7 to 9 hours	7 to 11 hours	Less than 7 hours
14 - 17 years	7 to 9 hours	6 hours	More than 11 hours
Young adults	7 to 9 hours	10 to 11 hours	Less than 6 hours
18 - 25 years	7 to 9 hours	6 to 10 hours	More than 11 hours
Adults	7 to 9 hours	6 to 10 hours	Less than 6 hours
26 - 64 years	7 to 9 hours	6 to 10 hours	More than 10 hours
Older adults	7 to 9 hours	6 to 10 hours	Less than 6 hours
65+ years	7 to 9 hours	6 to 10 hours	More than 10 hours

*The National Sleep Foundation, Hirshkowitz, et al, 2015

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1 2 3 4 5 6 7 8 9 10



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To laminate and hand out: ChildLine cards



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To laminate and hand out: Calm cards



21

THE SLEEP CARD GAME - These cards show matching pairs of actions. One action in each pair helps you get sleep. The other action can keep you from good sleep. Print this sheet of cards. Cut them out along the lines. Shuffle the cards and turn them face down. Each player picks up two cards. If the cards match, the player keeps the pair. If they don't match, replace the cards. The player with the most matched pairs wins!



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Sleep Support cards

Card 1. Problem: I have too much energy to go to sleep and I feel wide-awake.

Sleep tip: It is better to go to bed when you feel tired and drowsy, but sometimes activities we do before bed can make us feel wide awake.

Solutions: quiet activities before bed
-Puzzles,
-Drawing and/or colouring,
-Read a book
-Write a story

Card 2. Problem: I want to play on my computer, tablet or on the phone longer, I'm in the middle of my game.

Sleep tip: Getting more sleep can help you to get better at the game and to become unstuck by giving your brain a break. You might complete the game faster this way.

Solution:
-Set yourself a time to stop playing the game and to start to do a quiet or relaxation activity. See card 1

Card 3. Problem: I feel too worried or anxious to go to sleep and my brain won't let me stop thinking or worrying.

Sleep tip: These feelings are normal but can make sleeping hard. You may need to practise relaxation exercises before bed.

Solutions:
-Write down your feelings,
-Do the 4-7-8 technique (Card 4),
-Talk to someone you trust
-Do a muscle relaxation exercise

Card 4. Solution: The 4-7-8 breathing technique

Sleep tip: This exercise can help you to relax and calm down if you feel upset, angry, worried or anxious. It helps your body to feel happier and to slow down.

1. Breathe in for 4 seconds
2. Hold this breath in for 7 seconds
3. Breathe out for 8 seconds
4. Go back to number 1.

Card 5. Problem: I feel too angry or upset to go to bed.

Sleep tip: These feelings are normal but can make sleeping hard. You may need to practise breathing and relaxation exercises whenever you feel this way. If you are feeling angry or upset a lot, it may be because you need more sleep to make things better.

Solution:
-Write down your feelings,
-Talk to an adult
-Do the 4-7-8 technique (card 4),
-Do card 6

Card 6. Solution: Progressive relaxation exercise

Sleep tip: This exercise can help your body to feel more relaxed, and to focus your attention on making all of your body to not feel stressed or stiff. Go to a quiet and safe place.

1. Close your eyes and breathe deeply
2. Imagine yourself squeezing tension in both hands tightly, then let go.
3. Tense & release on each activity,
4. Do the fly (face & nose), worm & balloon (mouth), turtle (neck & shoulders), cat (back), monkey (stomach), & slime (feet)

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Sleep Support cards

If I am worried, this card can help me know what to do...

5	<p>Large Problems</p> <p>Affects: 30 or more Lasts: months or years Level of harm: physical injury, death</p> <p>Time to solve: several months, need to use a plan with many steps</p> <p>People to ask: parents or people - go to school</p>
4	
3	
2	
1	
	<p>Medium Problems</p> <p>Affects: 10 or more Lasts: days or weeks Level of harm: small physical injury or very upset feelings</p> <p>Time to solve: 25 minutes - 1 hour</p> <p>People to ask: usually need an adult to help, 1 or 2 people.</p>
	<p>Low Problems</p> <p>Affects: 1 or 2 people Lasts: minutes Level of harm: small upset feelings</p> <p>Time to solve: 10 or 15 minutes</p> <p>People to ask: most can usually solve the problem, 1 or 2 people, many people ignore this size problem</p>

* Remember.... your reaction should match the size of the problem.
(Small problem = small reaction)

When I'm angry or upset I can...

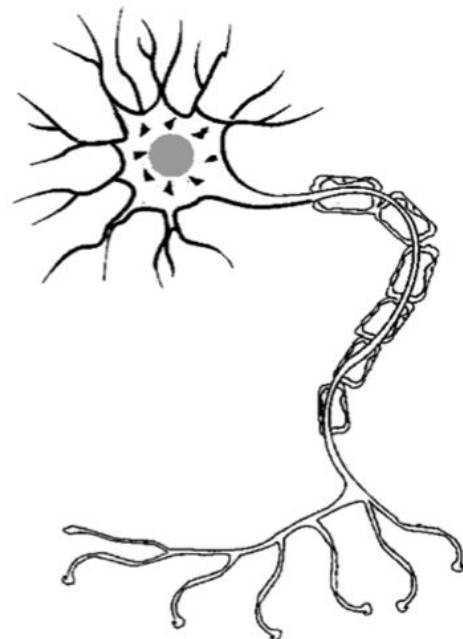


The Brain



THESE

The Neuron





Bad for sleep



Using the TV before bed
The light that shines from the TV can stop your body from producing the "sleep hormone" melatonin that makes you sleep well, not wake up tired and feel tired during the day.

Doing exercise to feel tired before bed
Although exercise is good for you, doing it right before bed can cause an increase in the energy hormone adrenaline. Jump on the spot for 10 seconds... does this make you feel ready for bed?

Having a break from technology before bed
Screens emit radiation in the form of blue light, which can stop your body from producing the "sleep hormone" melatonin that makes you sleep well, not wake up tired and feel tired during the day.

Having warm hands and feet before bed
If you get in there with cold hands and feet it can stop your sleep hormone from working properly. So, you might want to wear them in the night. You could also use a hot water bottle or a heating pad to warm your hands and feet.

Having a break from technology before bed
Screens emit radiation in the form of blue light, which can stop your body from producing the "sleep hormone" melatonin that makes you sleep well, not wake up tired and feel tired during the day.

Doing puzzles, drawing or art before bed
This is a relaxing activity that can help you to relax from daily activities that create more energy hormones, so more relaxing hormones that create "feel good hormones" like serotonin. It can also help to stretch and relax your body to prepare for sleep.

Breathing exercises before bed
This is a relaxing activity that can help you to relax from daily activities that create more energy hormones, so more relaxing hormones that create "feel good hormones" like serotonin. It can also help to stretch and relax your body to prepare for sleep.

Having natural chemicals in my body
This is a relaxing activity that can help you to relax from daily activities that create more energy hormones, so more relaxing hormones that create "feel good hormones" like serotonin. It can also help to stretch and relax your body to prepare for sleep.

Going to bed whenever I want to
This is a relaxing activity that can help you to relax from daily activities that create more energy hormones, so more relaxing hormones that create "feel good hormones" like serotonin. It can also help to stretch and relax your body to prepare for sleep.

Going to bed when I'm sleepy
This is a relaxing activity that can help you to relax from daily activities that create more energy hormones, so more relaxing hormones that create "feel good hormones" like serotonin. It can also help to stretch and relax your body to prepare for sleep.

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This sleep diary will take 3-4 minutes maximum to complete per day, and you can start it on any day of the week. Please complete the sleep diary daily and as soon as possible.

Child's full name: _____ Please collecting date: _____

Please collect the following information for one week. Each night, indicate (1) the initial time you put your child to bed, (2) the time your child actually fell asleep after being put to bed, (3) the time of each instance of waking, and (4) what your child did during the waking and what you did in response to your child. Also describe the length and nature of any naps that occurred that day.

Day/Date	Time put to bed (am or pm?)	Time fell asleep (am or pm?)	Time awake	Time awake	Detail any reasons for night time waking (e.g. stress, worry, comfort, noise, temperature, light)
Wk beginning: ___/___/___					
Mon					
Tue					
Wed					
Thurs					
Fri					
Sat					
Sun					

*Adapted from Dand, V. M. (1998). Sleep Action. Baltimore: Paul H. Brookes.

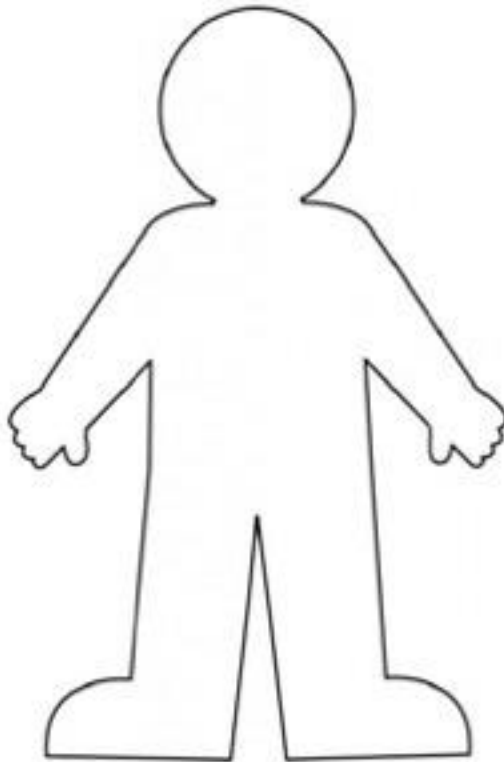
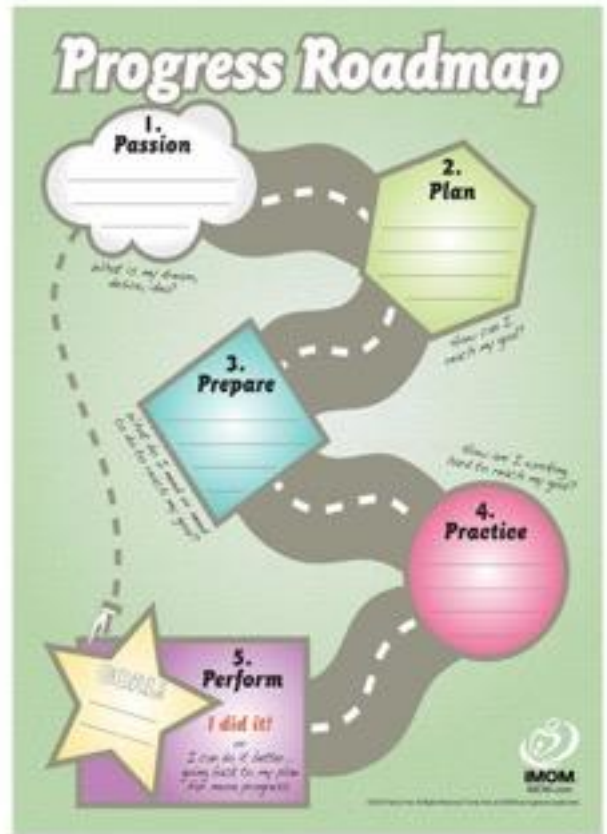
Please also see the Sleep Me Happy website at www.sleepmehappy.com/parents for more sleep information, tips and support.

Progressive Muscle Relaxation exercise

Progressive muscle relaxation is a technique that is used to rid the body of tension that may be associated with fear or anxiety. This is because one way that the body responds to fear and anxiety is to create tense muscles. Practising progressive muscle relaxation exercises can teach your body to respond differently to the things that cause fear and anxiety.

1. Imagine that you have a lemon in each of your hands - squeeze them hard to get all of the juice out. Squeeze harder... then put them down and think about how your hands feel. Get two more lemons and squeeze again even harder this time. Then let them go.
2. Now pretend that you are your favourite superheroes, big and strong. Put your arms up to show your muscles and how strong you are. Squeeze your muscles to make them bigger and to show off to your sidekick. Now relax them and feel how different they feel.
3. Imagine a buzzing fly comes and lands on your forehead so you scratch up your forehead and eyebrows as much as possible to get it off. Raise your eyebrows as much as you can, then lower them to make it go away. Then, it looks like it has flown away.
4. The fly comes back again but now lands on your nose, so you have to wiggle and scratch up your nose and cheeks to try to get him to fly away.
5. Imagine now that your eyes feel really heavy and you need to squeeze them to make them go back to normal. Squeeze and relax. Squeeze and relax.
6. Imagine that you are now chewing gum, really sticky and thick sweet. You have to chew really, really slowly, so open your jaw slowly, then bite down hard and tense your jaw. Relax your jaw now and open your mouth wide and try to lick off your **luscious** syrup or jam at each corner of your mouth.
7. Now you want to hunch up a bit, so you pucker your lips take a long breath in and slowly breathe out to flatten the balloon. Breathe in as long as you can and blow out as far as you can until the balloon flies away.
8. Imagine now that you are a turtle, and you need to find shelter from the rain. Push your shoulders up to your ears as far as possible. Now let them drop. You have to try again as you head isn't all the way in. Push your shoulders up to your ears and pull in your head to get it into your shell.
9. Imagine now that you are a cat and need to take a big yawn and stretch to try to reach your cat treats on a high shelf. Reach up high and feel your arms and back stretch, then let your arms drop down to your sides.
10. Now, you are back to being you - imagine a chunky monkey is coming to tickle your tummy, but he can only tickle you if your tummy is soft so tighten it up as much as possible. You now relax your tummy and take a deep breath, but the monkey saw you relax and is coming back again. Tighten up and watch the monkey run away. Take a deep breath in and out.
11. Now we're standing in a slime puddle with our bare feet. It's so slippery and slimy and you can feel it squishing through your toes. You feel the slime squish between your toes and you scratch up your feet to get it out - but as you do this, you make a rude and funny noise. Now relax your feet again to try to make an even bigger noise.

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The Sleep Club Sleep Quiz



6. Not getting enough sleep could make me overweight.

True

False



7. How many hours sleep should I have every night?

8 - 10 hours

9 - 11 hours

10 - 12 hours

11 - 13 hours

8. Having breakfast could affect my sleep.

True

False

9. If I exercise right before bed, it will make me tired enough to sleep.

True

False

10. Drawing, colouring and doing puzzles before bed can help me have a good night's sleep.

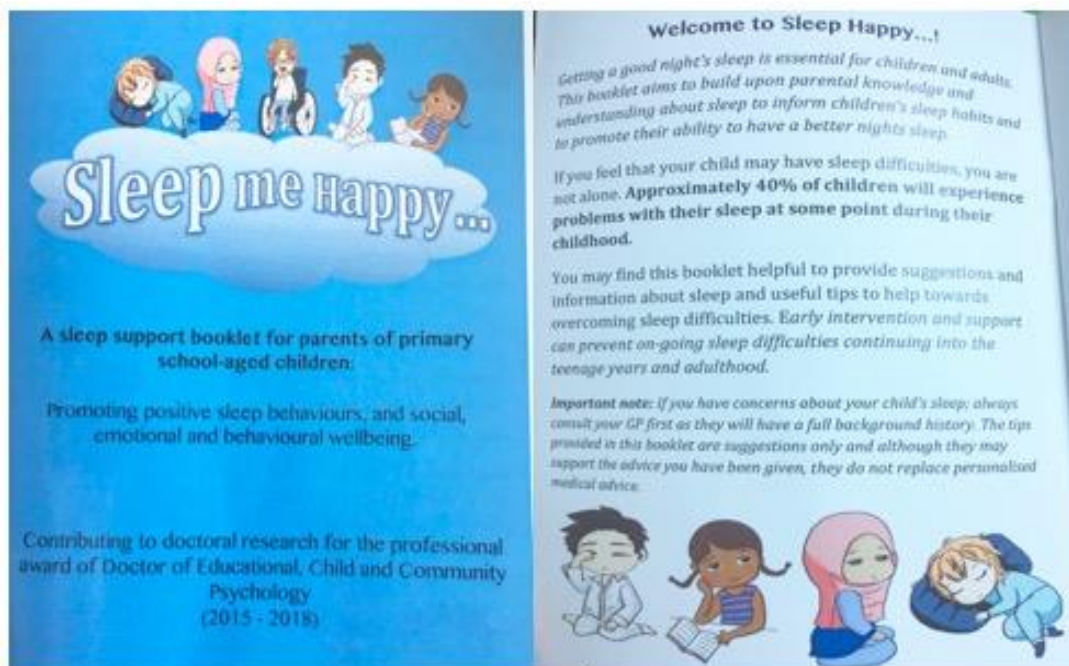
True

False

Appendix 13. The Sleep Support Booklet

The Sleep Me Happy Booklet is a twenty-four-page printed booklet that I designed and provided free of charge to parents, though it could also be reviewed with their children. It provided participants with sleep-related information relating to:

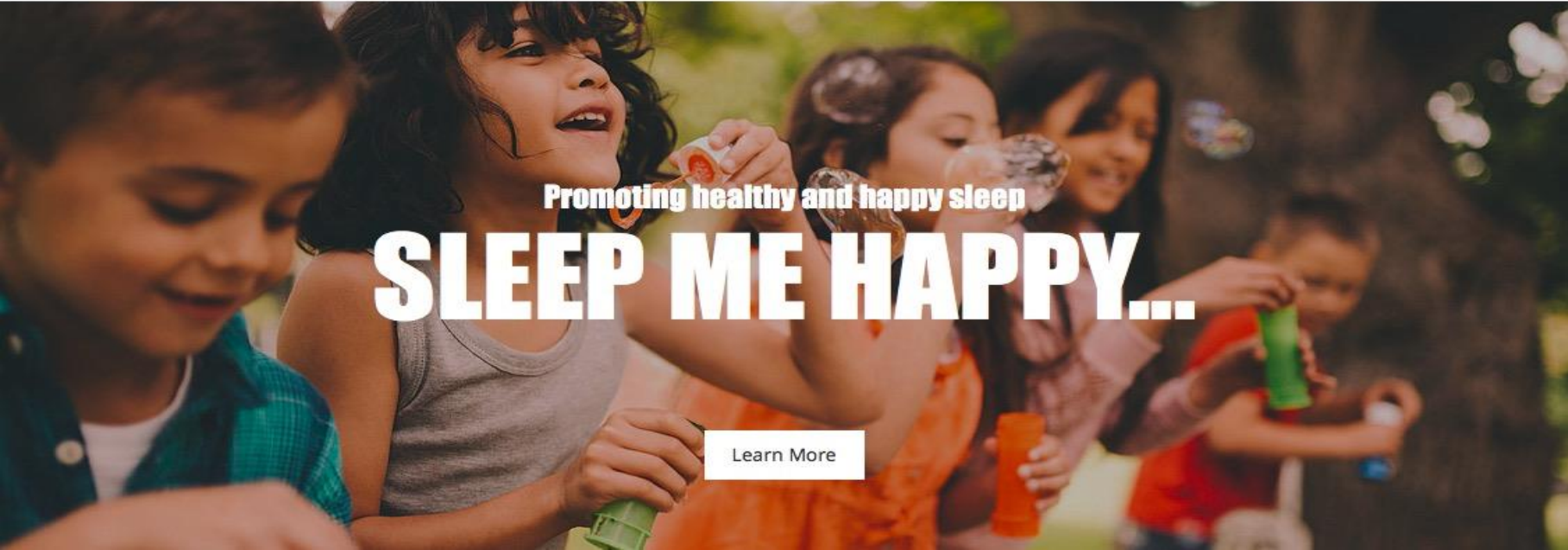
- The cognitive, physical, emotional and academic factors that poor sleep can have an impact on;
- Identifying potential sleep difficulties;
- Recommended sleep durations according to age;
- Exploring contributing reasons that could be underlying poor sleep;
- Explaining how sleep works and its impact on hormones;
- How to complete a sleep diary;
- Creating a positive bedtime routine;
- Recommendations to overcome specific sleep-related difficulties;
- How to identify difference between nightmares and night-terrors;
- Relaxation exercises;
- Sleep tips to support adults with poor sleep.



Appendix 14. The Sleep Me Happy Website: Website address: www.smhappy.wixsite.com/smhappy



[Home](#) [About](#) [Research](#) [Sleep Info](#) [Strategies](#) [Downloads](#) [Videos](#) [Help](#) [Contact](#)



I designed and created a website to support parents to engage with the research and to support their knowledge and techniques of sleep concerns, sleep strategies and free resources. The website provides information on:

- The sleep research and a booking form so that parents can book their telephone consultation (parents were also provided with an email address);
- Sleep;
- Hormones and sleep;
- Sleep strategies;
- Information for parents of children with additional needs;
- Educational videos about sleep for parents and children;
- Relaxation videos and resources for parents and children;
- Signposting for parents about where they can obtain further help if they are concerned about their child's sleep, including contact details of organisations, and books;
- Free resources: sleep diaries, NHS recommendations, progressive muscle relaxation techniques, recommendations for anxious children, bedtime story e-books, a sleep activity book for children, a researcher created sleep strategies presentation, example bedtime routines, and numerous reward charts.

I asked professional colleagues and parents known to me to review the website for ease of use and clarity of information before the website was published and I received positive feedback on all accounts. I assessed basic and overall engagement with the sleep website through the use of user analytics, which can be seen in Appendix 36 (p.373). This demonstrates that there was some interaction by the participants with the website.

Appendix 15. Overview of the Sleep Club sessions

- Cognitive Behavioural Approaches and Mindfulness (Newark, 2013; Rydzkowski et al., 2016; Sadeh, 2005), through the use of exploring values, exploring cognitive distortions or false thoughts by examining thoughts, feelings and behaviours related to sleep.
- The use of progressive muscle relaxation exercises and relaxed breathing (Rydzkowski et al., 2016);
- The use of exploring personal constructs using scaling techniques (Kelly, 1977), and solution-focused techniques and planning (Bennett, Barlow, Huband, Smailagic, & Roloff, 2013). This was through the use of goal setting, present and future-focused questions, the use of the Miracle Question and through experiments (Trepper et al., 2008).
- Behavioural interventions (Sadeh, 2005a). Through the use of differentiated reinforcement or weekly rewards/incentives and praise.
- Psycho-educational sessions (Cain, Gradisar, & Moseley, 2011), to raise knowledge and awareness of sleep through the use of individual and group activities related to sleep, dissemination of relaxation strategies, and through learning about how sleep affects the brain.

Delivered to children: All participants taking part in Phase Two of the research had taken part in the earlier phase of the research and had provided consent to take part at all stages of the research. I designed a Sleep Club manual and materials to ensure the consistent delivery of the six-week, brief school-based Sleep Club intervention for Phase Two of the research. The intervention was carried out with small groups of no more than four children in each group, and if a school had more than four children taking part in the Sleep Club, then two groups were formed, which ran consecutively after the other. Each session lasted for a total of 25-30 minutes and built up sequentially from themes explored in the previous weeks. The format of the Sleep Club and the underpinning psychological principles explored are:

- Session one: introduces the Sleep Club to the children, sets the ground rules, and records their baseline knowledge of their sleep (sleep quiz).

- Session two: uses a solution-focused and personal construct psychology approach to explore children's views and what they would hope to achieve by taking part in the Sleep Club, and goal setting.
- Session three: explores what the research says about children's sleep and the impact of technology on sleep. It also starts to link children's thoughts, feelings and sleep behaviours using a cognitive behavioural approach.
- Session four: explores what the research says about children's sleep and learning. It expands on the previous thoughts, feelings and sleep behaviours activity by using a cognitive behavioural approach framework to problem-solving and explores the impact of sleep on the brain, neurons and learning.
- Session five: expands more upon the previous thoughts, feelings and sleep behaviours activity by using a cognitive behavioural approach (A sleep metaphor in acceptance and commitment therapy).
- Session six: measures the difference in sleep knowledge between first and last sessions to assess children's sleep knowledge. It also explores the impact of the bedroom environment on children's sleep, and the same sleep quiz that was given to the children at the start of the intervention is given to measure sleep-related knowledge.
- Sessions one to six: Mindfulness and progressive relaxation exercises are used at the start of each session and are explored through video and resources provided to the children throughout the intervention.
- Sessions one to six: A behavioural approach is also taken to differentially reward the most positive sleep-related behavioural changes made by each child. Therefore no child will be penalised for not having made any changes or having made little changes. All children will be provided with differentiated rewards (smaller achievements = smaller rewards) for their participation and progress. Therefore no children will be 'left out'. In using differential reinforcement, I hope to utilise the benefits of group influence, to support children's decision-making and motivations in line with the support and progress

of peers within a group setting. Star of the week certificates are also given for exceptional progress and acknowledgement. All children are provided with a certificate of completion at the end.

○ Evaluation: Within 24-hours of completing the Sleep Club, the Teaching Assistant and the children complete the evaluation questionnaires in my absence to avoid respondent bias. This feedback is provided to the school's Special Educational Needs Co-ordinator (SENCO) to return to me.

The Sleep Club Evaluation: School Staff

Please answer the following questions. It will help us improve our sessions.



1. How interesting did you find the Sleep Club sessions?

1 2 3 4 5 6 7 8 9 10

Not very
interesting

Very Interesting

Please give us your comments about what you found interesting:

2. Please say two things that you think were done well:

1)

2)

3. Please suggest what could be improved:

4. How would you rate the Sleep Club out of 10?

1 2 3 4 5 6 7 8 9 10

Not very
good

Very good

5. Would you recommend the Sleep Club to other schools?

Yes

No

6. Any other comments?

The Sleep Club Evaluation



1. Please name three things you liked/or that was good about the Sleep Club.

-
-
-

2. What could have been better about the Sleep Club?

-
-
-

3. Would you tell a friend that they should do the Sleep Club?

YES

NO

4. What are three things you learned at the Sleep Club?

-
-
-

5. How would you rate the Sleep Club out of 10?

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____ 8 _____ 9 _____ 10
Not very good Very good

6. Any other comments?

Parents: post- sleep-club intervention evaluation

Date: _____

This evaluation should take no longer than 10 minutes to complete. Please answer all questions and return to your child's class teacher. Many thanks for your time.

1. Has there been any change in your child's sleep behaviours since they completed the sleep-club intervention?

Yes, a lot	Yes, a little	Not really	Not at all

Please elaborate:

2. What impact, if any do you think the Sleep Club has had on your child in relation to their emotions, sleep behaviour, and sleep knowledge?

○ **Emotions**

A big impact	A little impact	A slight impact	No impact

Please elaborate:

○ **Sleep behaviour**

A big impact	A little impact	A slight impact	No impact

Please elaborate:

○ **Sleep knowledge**

A big impact	A little impact	A slight impact	No impact

Please elaborate:

3. On a scale of 1 – 10, how would you rate the impact of the intervention on your child’s sleep behaviours? (Please circle)

No impact 1 2 3 4 5 6 7 8 9
10 A big impact

Q. 3. Please elaborate:

4. On a scale of 1 – 10, where one is no impact, and 10 is a big impact, how would you rate the impact of the intervention on your child’s sleep knowledge?

No impact 1 2 3 4 5 6 7 8 9
10 A big impact

Please elaborate:

5. Please bullet point at least three views about the Sleep Club process (questionnaires, sleep booklet, sleep diaries, communication with the researcher) for you as a parent?

6. Did the Sleep Club intervention meet your expectations?

Yes, exceeded my expectations	Yes, it met my expectations	No, it did not meet my expectations

Please elaborate:

7. What are your views about the Sleep Club process (weekly sessions, rewards, certificates, questionnaires, sleep information) for your child?

8. Given the outcomes for you/your child, would you recommend this sleep-club intervention to a friend?

Yes	No

9. Any other comments, and/or things that could be improved, and/or things that were very good?

1. Familiarisation of the data, through actively and repeatedly reading the data to identify semantic patterns before coding commenced:

- Data transcription.
- Reading and re-reading the data to identify initial ideas.

2. Generating initial codes:

- Systematically coding interesting aspects of the data.
- Collating data according to each code.

3. Searching for themes:

- Sorting codes into potential themes.
- Collating all relevant data under each theme.

4. Reviewing themes:

- Checking if the themes support the coded extracts.
- Checking if the themes support the complete data set.
- Reviewing the data to identify additional themes.
- Creating a thematic map from the data analysis.

5. Defining and naming themes:

- Continued analysis to refine each theme.
- Checking the narrative that the analysis creates.
- Clearly define and name each theme.

6. Producing evidence of the themes identified in the data:

- Identification of extract examples.
- Analysis of the chosen extracts.
- Linking of the analysis to the research question.

Appendix 18. Certificates of ethical approval



**COLLEGE OF SOCIAL SCIENCES
AND INTERNATIONAL STUDIES**

Ethics Committee
ssis-ethics@exeter.ac.uk

CERTIFICATE OF ETHICAL APPROVAL

Academic Unit: Graduate School of Education

Title of Project: Exploring the impact of sleep difficulties on children's social-emotional and behavioural wellbeing. Is this a role for the Educational Psychologist?

Research Team Member(s): Sanchia De'Cage

Project Contact Point: Sd489@exeter.ac.uk

Supervisor (s): Brahm Norwich and Margie Tunbridge

This project has been approved for the period

From: 27.03.2017

To: 01.09.2017

Ethics Committee approval reference:

Signature:

Date: 27.03.2017

A handwritten signature in black ink, appearing to read 'Lise Storm', with a blue circular stamp or mark to the right.

(Lise Storm, Chair, SSIS College Ethics Committee)

CERTIFICATE OF ETHICAL APPROVAL

Academic Unit: Graduate School of Education

Title of Project: The impact of a behavioural sleep intervention on primary-school children's sleep behaviours and children's views

Research Team Member(s): Sanchia De'Cage

Project Contact Point: Sd489@exeter.ac.uk

Supervisor(s):

This project has been approved for the period

From: 07.11.2017

To: 30.04.2018

Ethics Committee approval reference: 201718-016

Signature:  **Date:** 07.11.2017

(Lise Storm, Chair, SSIS College Ethics Committee)

[University header]

Exploring the impact of sleep difficulties on children's social-emotional and behavioural well-being. Is this a role for the Educational Psychologist?

2017 - 2018

Dear parent, teacher,

A final thanks for your assistance in completing the required information to support the completion of the programme. This letter concludes the Sleep Club intervention and your participation. I hope you found it to be a positive and informative experience.

Debrief:

This research has concerned the impact of a Sleep Club school-based sleep intervention on primary school-aged children's sleep knowledge and behaviours.

The Sleep Club involved:

- Child participation in the Sleep Club sessions.
- Parent participation through the completion of weekly sleep diaries, reviewing the Sleep Support Booklet, the Sleep Me Happy website and accessing the free telephone consultation.
- Parent and child completion of questionnaires.

I have enclosed a list of services and agencies that are available both locally and nationally should you wish to seek specialised advice.

Best wishes,

Sanchia De'Cage

www.smhappy.wixsite.com/smhappy

If you need to contact me, or my research supervisors to discuss anything further, you may use the details provided below.

Contact details of investigator: sd489@exeter.ac.uk

Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge (m.tunbridge@ex.ac.uk)

Support Services

Where to get help:

If you are concerned about your child's sleep, please contact your **general practitioner/paediatrician** in the first instance, who can provide you with tailored information, and make any appropriate referrals if required. This should always be a first step to ensure that the sleep difficulties are not caused by an underlying medical condition.

- If you would like to find out more about being supported with your child's sleep needs, please speak to the Special Educational Needs Coordinator (SENCo) at your child's school or the headteacher who might be able to put you in touch with your link educational psychologist or other appropriate services.
- Educational Psychologist work with all children and young people aged 0 – 25 with any concern that presents a barrier to their learning. The _____ Educational Psychology Service website can be accessed here, and there are leaflets online to describe the nature of our service:
https://www._____.gov.uk/Education_and_learning/Schools_and_colleges/parents-students/Educational%20support%20services/Pages/Educational-Psychology-Service.aspx

You may also wish to take a review the following organisations:

Organisations

The Children's Sleep Charity

A charity that supports both parents and practitioners to ensure that children get a better night's sleep.

www.thechildrenssleepcharity.org.uk

[07912 667676](tel:07912667676)

British Association for Behavioural and Cognitive Psychotherapies

Find details of all officially accredited CBT Therapists. All the practitioners listed are accredited members of either the British Association for Behavioural & Cognitive Psychotherapies (BABCP), which is the lead organisation for CBT in the UK and Ireland, or the Association for Rational Emotive Behaviour Therapy (AREBT).

[0161 705 4304](tel:01617054304)

www.babcp.com

British Snoring & Sleep Apnoea Association

Helping snorers and their sleeping partners in the UK and worldwide, the association provides information on the causes and also advice on remedies for snoring. A range of books, devices and remedies are available to purchase on the site, providing information on achieving an undisturbed night's sleep and there is a monthly newsletter available.

[01737 245638](tel:01737245638) – Freephone helpline [0800 085 1097](tel:08000851097)

info@britishsnoring.co.uk

www.britishsnoring.co.uk

CPAP

A free public information resource for those seeking to learn more about sleep apnoea and snoring and for those who are existing sleep apnoea patients on CPAP therapy. Run by a company called Intus Healthcare, which specialises in the diagnosis and treatment of obstructive sleep apnoea (OSA), the site offers users the latest news on OSA, forums for patients to discuss their concerns and

health problems, useful tips and troubleshooting on CPAP therapy via the forums and blogs, useful links to further services and the latest research on OSA, along with frequently asked questions.

www.CPAP.co.uk

Sleep Apnoea Trust

Sleep apnoea is a disorder that occurs during sleep when the sleeper actually stops breathing due to a tightening of muscles in the throat which awakes them in a breathless state before quickly returning back to sleep. A registered charity and managed by volunteers, the trust aims to improve the lives of sleep apnoea patients and their families by offering information, support and non-medical advice while also sending regular newsletters to trust members. Membership can be obtained via the website, which also lists a number of sleep clinics and helplines to call for advice.

[0845 038 0060](tel:08450380060)

info@sleep-apnoea-trust.org

www.sleep-apnoea-trust.org

Sleep Matters Helpline

This helpline run by the Medical Advisory Service puts callers straight through to trained nurses who will talk through problems and, if necessary, refer to the right source for further help and advice.

[020 8994 9874](tel:02089949874) (6pm-8pm weekdays)

office@medicaladvisoryservice.org.uk

www.medicaladvisoryservice.org.uk

[University header]

CHILD DEBRIEF LETTER [size 14 font]

Dear _____,

A final thank you for your help in taking part in the Sleep Club. As you know, the sessions have now ended. If you have any worries about your sleep, please discuss this with a trusted adult who may be able to offer you some help. You may also like to look over any of the resources that you were given in the Sleep Club sessions or to look at the Sleep Me Happy Website for any useful tips.

Best wishes,

Sanchia De'Cage

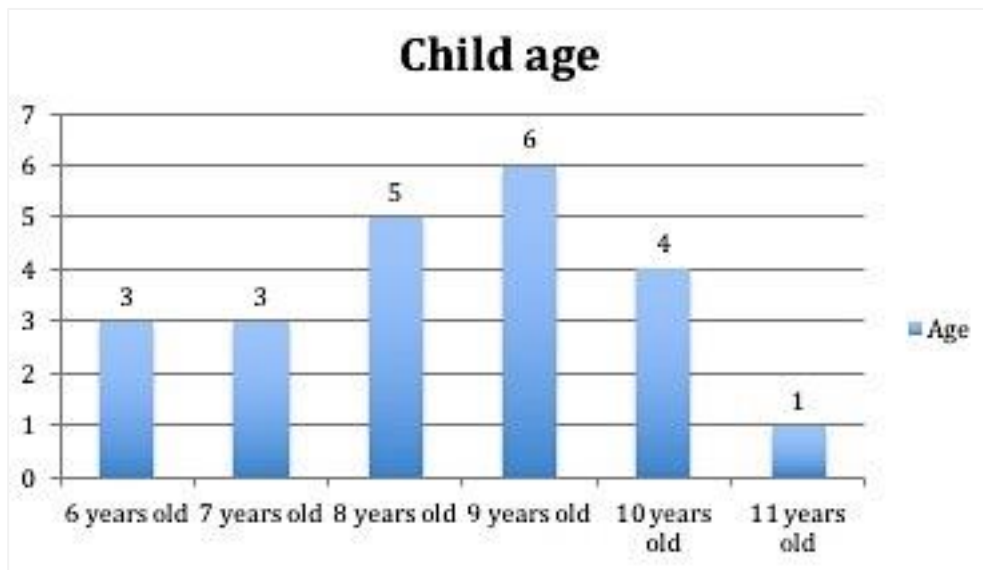
If you need to contact me, or my research supervisors to discuss anything further, you may use the details provided below.

Contact details of investigator: sd489@exeter.ac.uk

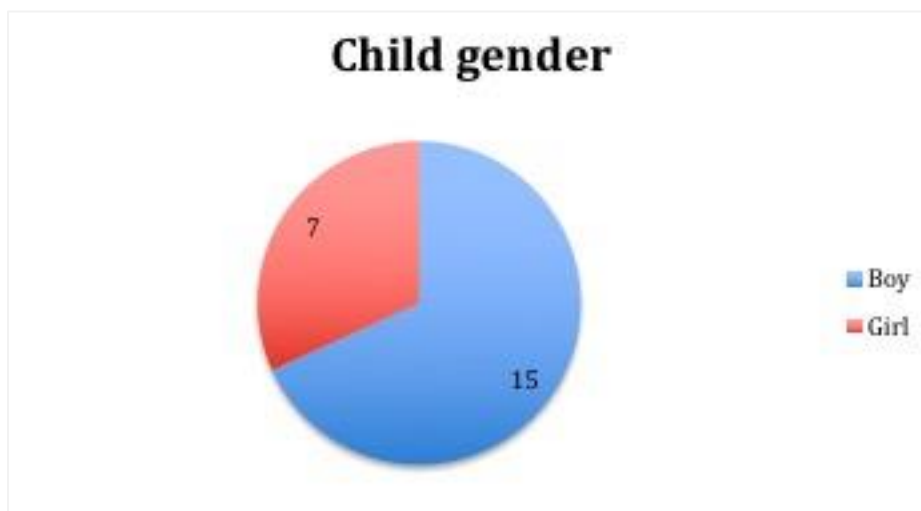
Name and contact details of supervisors: Professor Brahm Norwich (b.norwich@ex.ac.uk); Dr. Margie Tunbridge (m.tunbridge@ex.ac.uk)

www.smhappy.wixsite.com/smhappy

Appendix 20. Phase one, participant demographic data



Child ages.

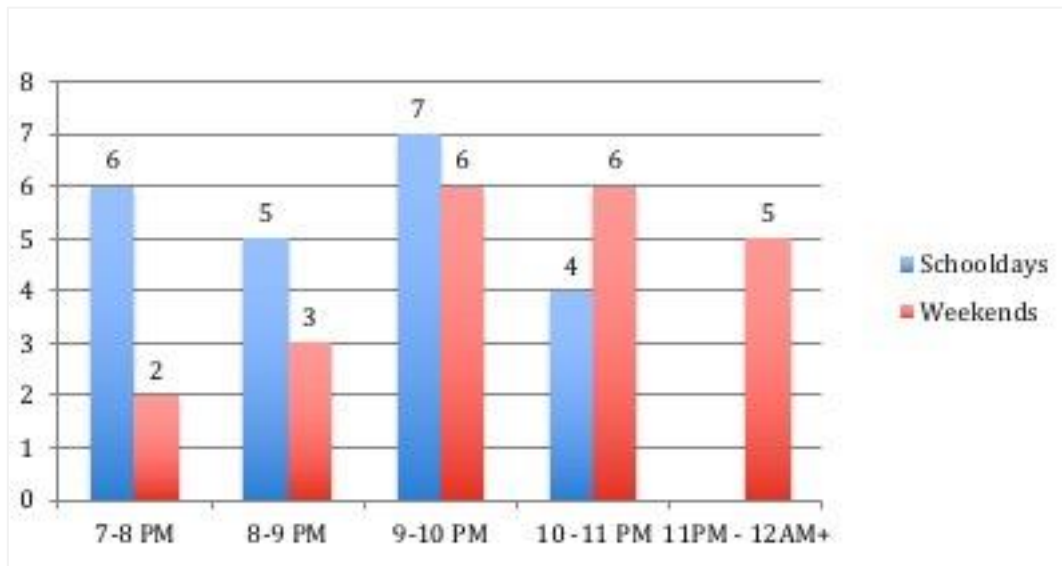


The division in children's gender.

Number of children that live with the child participant

How many children live with you?

	Frequency	Percent
Just me	4	18.2
Me +1	10	45.5
Me +2	6	27.3
Me +3	2	9.1
Total	22	100



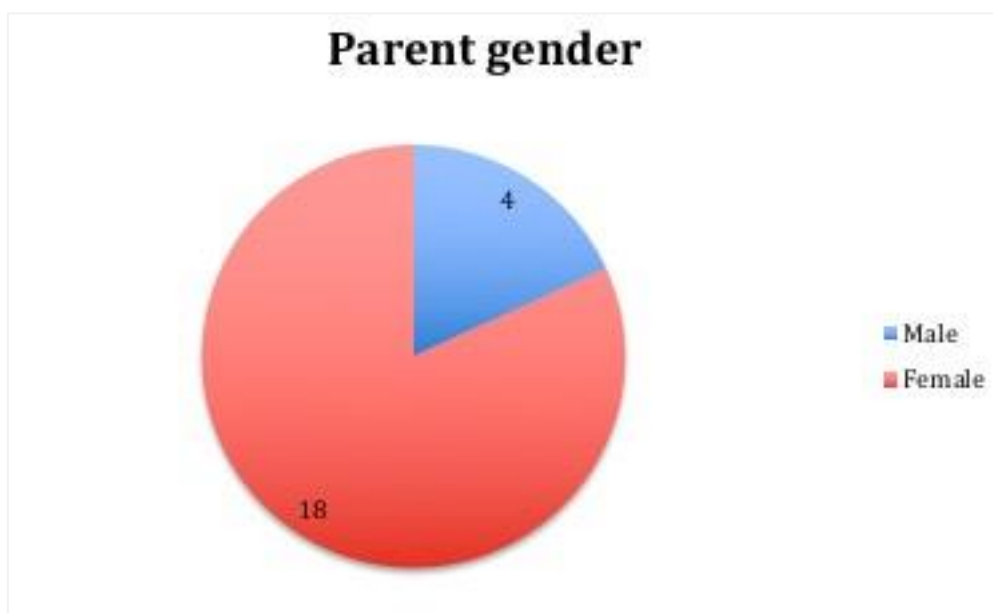
Weekday and weekend self-reported bedtimes

Frequency data illustrating who sets parental rules about bedtime

SSR data	n	Dad		Mum		You	
		Frequency	%	Frequency	%	Frequency	%
Q1. Who in your family sets the rules about when you go to bed?	22	6	27.3	15	68.2	1	4.5

Frequency data illustrating child views about their sleep

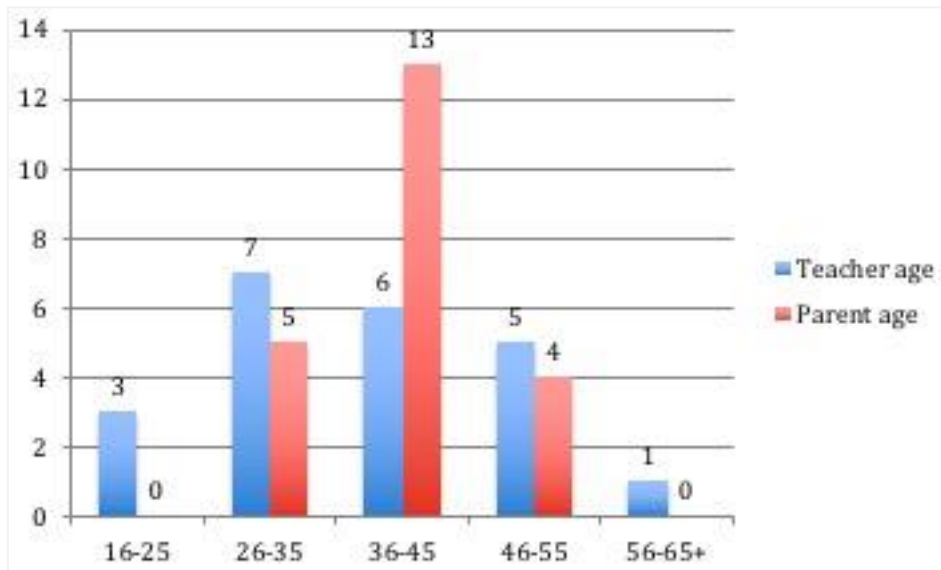
SSR data	n	No		Yes	
		Frequency	%	Frequency	%
Q2. Do you think you have trouble sleeping?	22	8	36.4	14	63.6
Q3. Do you like to go to sleep?	22	13	59.1	9	40.9



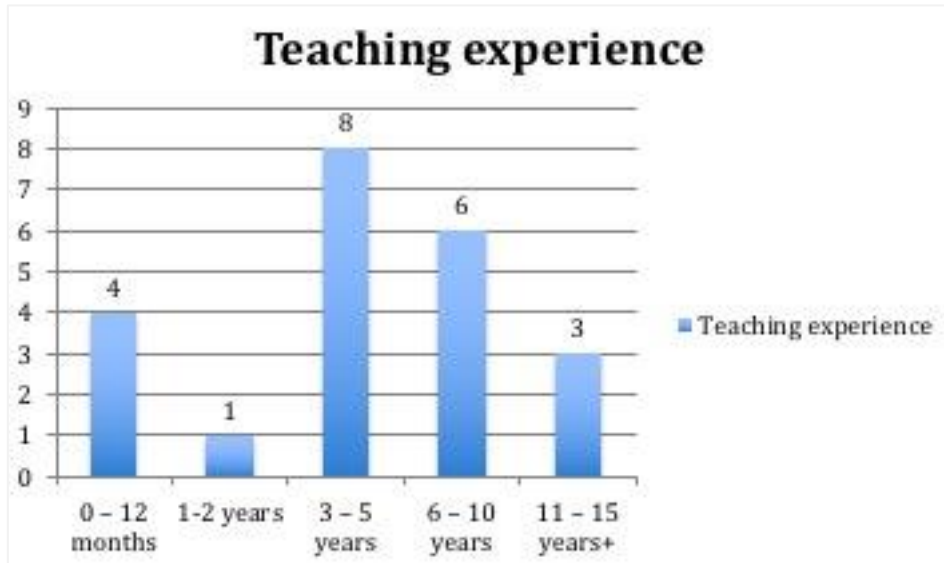
Parent gender figures

The number of parents who has sought professional advice

Response	Frequency	Percent
No	18	81.8
Yes	4	18.2
Total	22	100



Parent and teacher ages



Teachers: Years of teaching experience

Appendix 21. Phase one descriptive data for children

Children's Positive and Negative Feelings questionnaire (Measure of psychosocial functioning)

Score	Frequency	Percent
26	1	4.5
32	1	4.5
33	2	9.1
34	1	4.5
36	2	9.1
37	2	9.1
38	2	9.1
39	2	9.1
40	1	4.5
42	2	9.1
43	2	9.1
44	1	4.5
45	1	4.5
46	1	4.5
47	1	4.5
Total	22	100

Sleep Self-Report Scores

SSR bedtime difficulties

Score	Frequency	Percent
15	1	4.5
17	2	9.1
18	1	4.5
21	3	13.6
22	4	18.2
23	3	13.6
24	3	13.6
25	1	4.5
26	2	9.1
29	1	4.5
30	1	4.5
Total	22	100

SSR sleep behaviour

Score	Frequency	Percent
8	1	4.5
9	3	13.6
10	1	4.5
11	2	9.1
12	1	4.5
13	8	36.4
14	3	13.6
16	1	4.5
17	1	4.5
18	1	4.5
Total	22	100

SSR daytime tiredness

Score	Frequency	Percent
5	4	18.2
6	4	18.2
7	3	13.6
8	6	27.3
9	2	9.1
10	2	9.1
11	1	4.5
Total	22	100

SSR total score

Score	Frequency	Percent
34	1	4.5
35	1	4.5
37	2	9.1
38	2	9.1
39	2	9.1
40	2	9.1
42	1	4.5
44	1	4.5
45	4	18.2
46	2	9.1
47	1	4.5
48	1	4.5
50	1	4.5
53	1	4.5
Total	22	100

Individual academic self-report scores

Academic self-report	Reading		Writing		Maths		
	n	Frequency	%	Frequency	%	Frequency	%
Not well	22	2	9.1	2	9.1	2	9.1
Not okay	22	1	4.5	1	4.5	1	4.5
Okay	22	6	27.3	9	40.9	5	22.7
Good	22	4	18.2	6	27.3	7	31.8
Great	22	9	40.9	4	18.2	7	31.8

These scores were converted into total scores for individual children by summing the scores reported by children for reading, writing and maths.

Academic total self-report scores

Academic self-report total score	Frequency	Percent
4	1	4.5
8	1	4.5
9	3	13.6
10	4	18.2
11	4	18.2
12	4	18.2
13	1	4.5
14	4	18.2
Total	22	100

Appendix 22. Phase one descriptive data for teachers

Teacher Strengths and Difficulties Questionnaire (measure of psychosocial functioning)

Teacher SDQ	Normal*		Borderline*		Abnormal*		Total	
	Frequency	%	Frequency	%	Frequency	%		
SDQ score	11	50	7	31.8	4	18.2	22	100%
Emotional problems	14	63.6	4	18.2	4	18.2	22	100%
Conduct problems	15	68.2	2	9.1	5	22.7	22	100%
Hyperactivity	18	81.8	3	13.7	1	4.5	22	100%
Peer problems	14	63.6	4	18.2	4	18.2	22	100%
Pro-social	16	72.7	3	13.7	3	13.7	22	100%

*Scored according to the original SDQ three-band categorisation

Teacher Daytime Sleepiness Questionnaire score

TDSQ score	Frequency	Percent
10	5	23
11	4	18
12	4	18
13	5	23
14	1	4.5
15	1	4.5
17	1	4.5
21	1	4.5
Total	22	100

Teacher rating of academic progress made overall

Teacher rating	Frequency	Percent
None	1	5
Little	6	27
Moderate	4	18
Average	11	50
Total	22	100

Teacher-rated academic attainment

Teacher rating	Reading		Writing		Maths		
Rating	n	Frequency	%	Frequency	%	Frequency	%
Emerging/below/below expectations	22	5	22.7	4	18.2	3	13.6
Working towards expectations/beginning	22	2	9.1	4	18.2	4	18.2
Expected/On track/working within/at expectation	22	12	54.5	13	59.1	13	59.1
Exceeding/beyond/beyond expectations/secure	22	3	13.6	1	4.5	2	9.1

Teacher academic attainment total

Score	Frequency	Percent
3	2	9.1
4	1	4.5
5	2	9.1
6	2	9.1
7	1	4.5
9	10	45.5
10	3	13.6
12	1	4.5
Total	22	100

Appendix 23. Phase one descriptive data for parents

Frequency table of parent SDQ ratings (measure of psychosocial functioning)

Parent SDQ	Normal*		Borderline*		Abnormal*		Total	
	Frequency	%	Frequency	%	Frequency	%		
SDQ score	12	54.5	4	18.2	6	27.3	22	100%
Emotional problems	11	50	2	9.1	9	40.9	22	100%
Conduct problems	13	59.1	4	18.2	5	22.7	22	100%
Hyperactivity	19	86.4	-	-	3	13.6	22	100%
Peer problems	7	31.8	7	31.8	8	36.4	22	100%
Pro-social	20	90.9	1	4.5	1	4.5	22	100%

*Scored according to the original SDQ three-band categorisation

Children's Sleep Habits Questionnaire (CSHQ): Bedtime resistance scores

Descriptor	Frequency	Percent
6	5	22.7
7	3	13.6
8	2	9.1
9	6	27.3
10	2	9.1
11	2	9.1
14	2	9.1
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep onset-delay scores

Score	Frequency	Percent
1	9	40.9
2	7	31.8
3	6	27.3
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep duration scores

Score	Frequency	Percent
2	1	4.5
3	6	27.3
4	2	9.1
5	3	13.6
6	2	9.1
7	6	27.3
8	2	9.1
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep anxiety scores

Score	Frequency	Percent
4	8	36.4
5	4	18.2
6	3	13.6
7	3	13.6
8	2	9.1
9	1	4.5
11	1	4.5
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Night wakings

Score	Frequency	Percent
3	16	72.7
4	2	9.1
5	2	9.1
7	1	4.5
8	1	4.5
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Parasomnias

Score	Frequency	Percent
7	7	31.8
8	2	4.5
9	5	22.7
11	1	4.5
12	5	22.7
14	5	22.7
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep-disordered breathing

Score	Frequency	Percent
3	17	77.3
4	2	9.1
5	1	4.5
6	1	4.5
8	1	4.5
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ): Daytime sleepiness

Score	Frequency	Percent
7	2	9.1
8	1	4.5
9	3	13.6
10	3	13.6
11	1	4.5
12	2	9.1
13	1	4.5
14	4	18.2
15	4	18.2
17	1	4.5
Total	22	100

Children's Sleep Habits Questionnaire (CSHQ) total score

Score	Frequency	Percent
32	1	4.5
34	1	4.5
35	1	4.5
38	2	9.1
40	1	4.5
41	1	4.5
43	1	4.5
44	2	9.1
47	1	4.5
51	3	13.6
52	1	4.5
53	1	4.5
54	1	4.5
55	1	4.5
56	1	4.5
57	1	4.5
61	1	4.5
63	1	4.5
Total	22	100

BLOCK CC

Table 20 indicated a number of statistically significant and moderate associations:

Block CC. Measures of psychosocial functioning: A significant and positive association was identified between the teacher-rated total SDQ score and children's externalising difficulties ($p < .001$) and children's internalising difficulties according to teachers ($p < .001$). Children rated by their teachers as having greater psychological difficulties had greater internalising and externalising difficulties.

There was a significant and positive association between children's externalising difficulties and internalising difficulties according to teachers ($p = .008$). According to teacher-report, as children's externalising difficulties increased, there was an increase in children's internalising difficulties.

A significant and positive association was found between the teacher-rated SDQ total difficulty score and the parent-rated SDQ total difficulty score ($p < .004$), and the parent-rated SDQ externalising score ($p = .012$). Children rated by their teachers as having greater psychological difficulties were also rated as having greater psychological difficulties and externalising difficulties according to their parents.

A significant and positive association was indicated between the teacher-rated SDQ externalising difficulty score and the parent-rated SDQ externalising difficulty score ($p = .002$). Children rated by their teachers as having greater externalising difficulties were also rated as having greater externalising difficulties according to parents.

A significant positive association was found between the teacher-rated internalising difficulties score and children's total SDQ difficulties according to parents ($p < .015$). Children rated by their teachers as having greater

internalising difficulties experienced greater overall difficulties according to their parents.

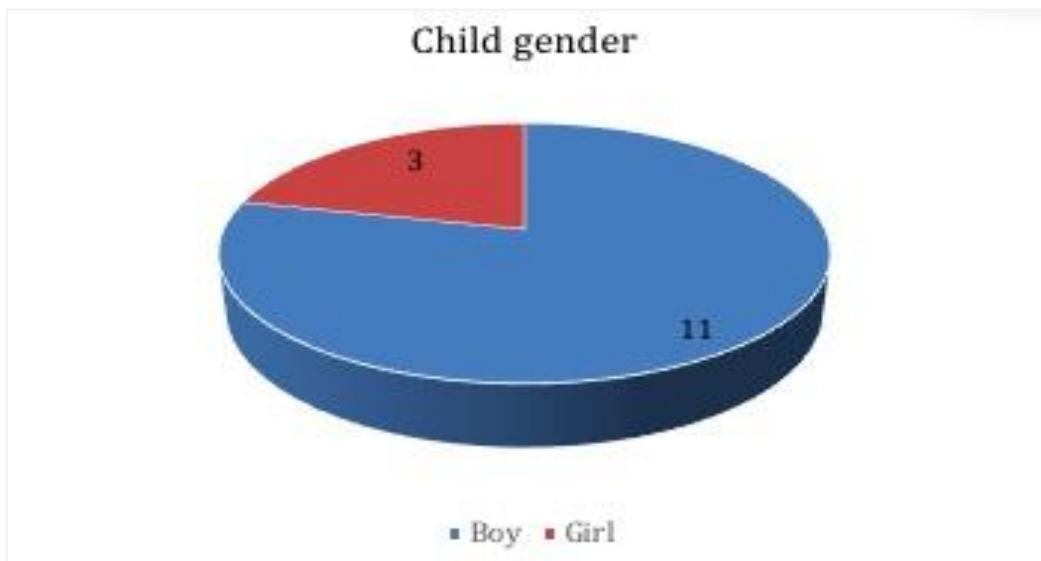
There was a significant and positive association between the parent-rated total SDQ difficulties score and children's externalising difficulties according to parents ($p=.001$). According to parent-report, as children's total difficulties increased, there was an increase in children's externalising difficulties.

There was a significant and positive association between the parent-rated total SDQ difficulties score and children's internalising difficulties according to parents ($p<.001$). According to parent-report, as children's total difficulties increased, there was an increase in children's internalising difficulties.

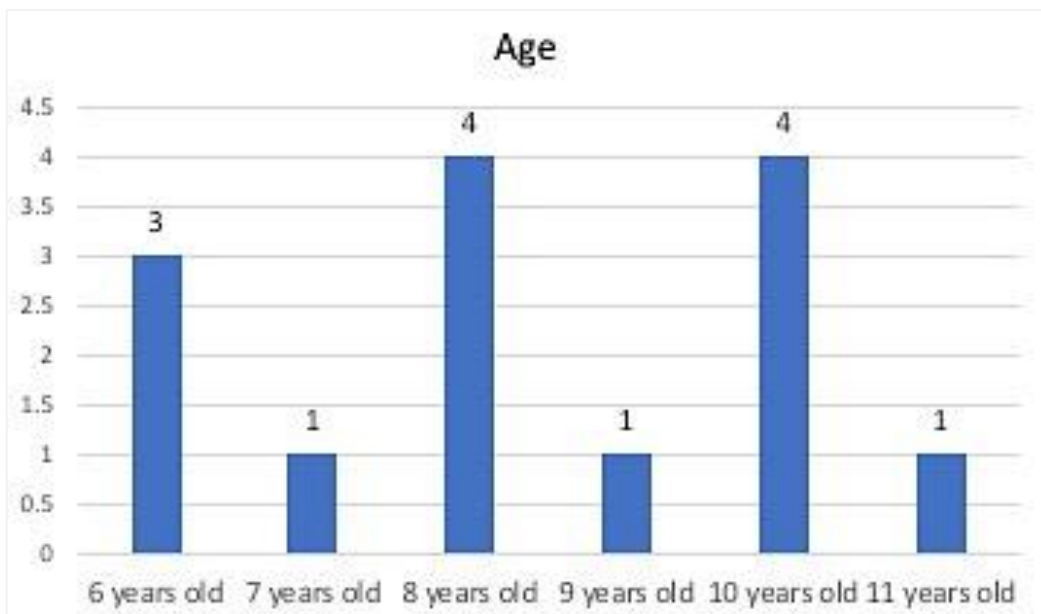
A number of non-significant associations were found:

- A non-significant association was found for teacher-rated total SDQ difficulties and parent-rated internalising difficulties ($p=.110$), and child-rated psychosocial functioning ($p=.828$).
- A non-significant association was found for teacher-rated externalising difficulties and parent-rated total SDQ difficulties ($p=.053$), parent-rated internalising difficulties ($p=.896$), and child-rated psychosocial functioning ($p=.999$).
- A non-significant association was found for teacher-rated internalising difficulties and parent-rated externalising difficulties ($p=.055$), parent-rated internalising difficulties ($p=.078$), and child-rated psychosocial functioning ($p=.124$).
- There was no significant association between the parent-rated total SDQ difficulties score and children's psychosocial functioning ($p=.862$).
- There was a non-significant association between the parent-rated externalising difficulties score and the parent-rated externalising difficulties score ($p=.535$), and children's psychosocial functioning ($p=.885$).
- A non-significant association was found for parent-rated internalising difficulties and child-rated psychosocial functioning ($p=.996$).

Appendix 25. Phase two demographic data



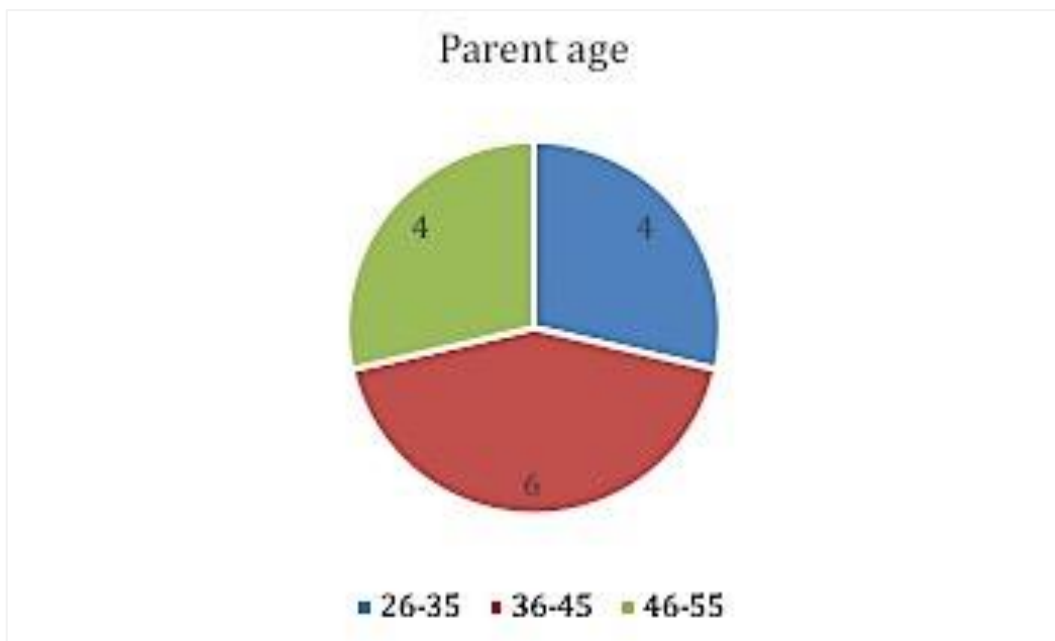
Child gender



Child ages



Parent gender



Parent age

Appendix 26. Phase two descriptive data for children

Sleep Self-Report Score according to time of data collection

SSR data: Time 1	No			Yes				
	<i>N</i>	Frequency	%	Frequency	%			
Q2. Do you think you have trouble sleeping?	14	5	35.7	9	64.3			
Q3. Do you like to go to sleep?	14	7	50	7	50			
SSR data: Time 5	No			Yes			Sometimes*	
	<i>N</i>	Frequency	%	Frequency	%	Frequency	%	
Q2. Do you think you have trouble sleeping?*	14	8	35.7	5	64.3	1	7.1	
Q3. Do you like to go to sleep?*	14	6	43.9	7	50	1	7.1	
SSR data: Time 6	No			Yes			Sometimes*	
	<i>N</i>	Frequency	%	Frequency	%	Frequency	%	
Q2. Do you think you have trouble sleeping?	10	8	57.1	2	14.3	-	-	
Missing	4							
Q3. Do you like to go to sleep?	10	4	28.6	5	35.7	1	7.1	
Missing	4							

*One child manually wrote 'sometimes'.

SSR bedtime difficulties according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
21	3	21.4	15	2	14.3	15	3	21.4
22	4	28.6	17	1	7.1	16	1	7.1
23	2	14.3	18	1	7.1	17	1	7.1
24	3	21.4	19	3	21.4	19	1	7.1
26	1	7.1	20	1	7.1	21	1	7.1
30	1	7.1	21	1	7.1	22	1	7.1
-	-	-	22	2	14.3	23	2	14.3
-	-	-	23	2	14.3	25	1	7.1
-	-	-	29	1	7.1	Total	11	78.6
-	-	-	-	-	-	Missing	3	21.4
Total	14	100	Total	14	100	Total	14	100

SSR sleep behaviour according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
8	1	7.1	7	1	7.1	8	1	7.1
9	1	7.1	8	1	7.1	9	1	7.1
10	1	7.1	10	1	7.1	10	4	28.6
11	2	14.3	11	4	28.6	11	2	14.3
13	5	35.7	12	2	14.3	12	1	7.1
14	1	7.1	13	2	14.3	13	1	7.1
16	1	7.1	15	3	21.4	15	1	7.1
17	1	7.1	-	-	-	Total	11	78.6
18	1	7.1	-	-	-	Missing	3	21.4
Total	14	100	Total	14	100	Total	14	100

SSR daytime tiredness according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
5	3	21.4	4	1	7.1	4	2	14.3
6	3	21.4	5	3	21.4	5	1	7.1
7	2	14.3	6	1	7.1	6	4	28.6
8	2	14.3	7	6	42.9	7	1	7.1
9	2	14.3	8	1	7.1	8	1	7.1
10	2	14.3	9	2	14.3	10	1	7.1
-	-	-	-	-	-	11	1	7.1
-	-	-	-	-	-	Total	11	78.6
-	-	-	-	-	-	Missing	3	21.4
Total	14	100	Total	14	100	Total	14	100

SSR total score according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
34	1	7.1	28.00	1	7.1	29	2	14.3
37	2	14.3	30.00	1	7.1	30	1	7.1
39	1	7.1	33.00	1	7.1	31	1	7.1
40	1	7.1	34.00	2	14.3	33	1	7.1
42	1	7.1	36.00	1	7.1	34	1	7.1
45	4	28.6	39.00	1	7.1	38	1	7.1
46	1	7.1	40.00	2	14.3	44	2	14.3
47	1	7.1	41.00	1	7.1	45	1	7.1
50	1	7.1	42.00	1	7.1	46	1	7.1
53	1	7.1	45.00	1	7.1	-	-	-
-	-	-	46.00	1	7.1	Total	11	78.6
-	-	-	51.00	1	7.1	Missing	3	21.4
Total	14	100	Total	14	100	Total	14	100

Sleep knowledge according to time of data collection

Time 2 (pre-intervention)			Time 4 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%
19	3	21.4	19	1	7.1
31	2	14.3	31	1	7.1
38	1	7.1	38	1	7.1
44	4	28.6	44	1	7.1
50	2	14.3	50	1	7.1
69	2	14.3	69	4	28.6
-	-	-	75	2	14.3
-	-	-	81	1	7.1
-	-	-	94	2	14.3
Total	14	100	Total	14	100

Appendix 27. Phase one descriptive data for parents

Children's Sleep Habits Questionnaire (CSHQ): Bedtime resistance scores according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
6	3	21.4	6.00	4	28.6	6	5	35.7
7	2	14.3	7.00	3	21.4	7	1	7.1
8	1	7.1	8.00	2	14.3	13	1	7.1
9	4	28.6	14.00	1	7.1	15	1	7.1
10	1	7.1	-	-	-	17	1	7.1
11	1	7.1	-	-	-	-	-	-
14	2	14.3	-	-	-	-	-	-
-	-	-	Total	10	71.4	Total	9	64.3
-	-	-	Missing	4	28.6	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep onset-delay scores according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
1	4	28.6	1.00	6	42.9	1	5	35.7
2	4	28.6	2.00	4	28.6	2	2	14.3
3	6	42.9	Missing	4	28.6	3	2	14.3
-	-	-	-	-	-	Total	9	64.3
-	-	-	-	-	-	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep duration scores according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
3	2	14.3	3.00	5	35.7	3	5	35.7
4	1	7.1	4.00	1	7.1	6	3	21.4
5	3	21.4	5.00	3	21.4	8	1	7.1
6	1	7.1	6.00	1	7.1	-	-	-
7	6	42.9	Total	10	71.4	Total	9	64.3
8	1	7.1	Missing	14	100	Missing	5	35.7
Total	14	100	Total	4	28.6	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep anxiety scores according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
4	4	28.6	4.00	3	21.4	4	2	14.3
5	3	21.4	5.00	1	7.1	5	2	14.3
6	2	14.3	6.00	5	35.7	6	2	14.3
7	1	7.1	12.00	1	7.1	7	1	7.1
8	2	14.3	-	-	-	11	2	14.3
9	1	7.1	Total	10	71.4	Total	9	64.3
11	1	7.1	Missing	4	28.6	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Night wakings according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
3	9	64.3	3.00	3	21.4	3	6	42.9
4	2	14.3	4.00	4	28.6	4	1	7.1
5	2	14.3	6.00	2	14.3	5	1	7.1
7	1	7.1	7.00	1	7.1	6	1	7.1
-	-	-	Total	10	71.4	Total	9	64.3
-	-	-	Missing	4	28.6	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Parasomnias according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
7	3	21.4	7.00	3	21.4	7	3	21.4
8	1	7.1	8.00	2	14.3	8	1	7.1
9	3	21.4	9.00	1	7.1	10	1	7.1
11	1	7.1	10.00	2	14.3	11	1	7.1
12	4	28.6	12.00	1	7.1	12	1	7.1
14	2	14.3	13.00	1	7.1	13	1	7.1
-	-	-	-	-	-	14	1	7.1
-	-	-	Total	10	71.4	Total	9	64.3
-	-	-	Missing	4	28.6	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Sleep-disordered breathing according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
3	10	71.4	3.00	6	42.9	3	6	42.9
4	2	14.3	4.00	3	21.4	4	2	14.3
5	1	7.1	5.00	1	7.1	6	1	7.1
8	1	7.1	Total	10	71.4	Total	9	64.3
-	-	-	Missing	4	28.6	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ): Daytime sleepiness according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
7	1	7.1	8.00	1	7.1	7	1	7.1
8	1	7.1	9.00	2	14.3	8	1	7.1
10	2	14.3	10.00	2	14.3	9	2	14.3
11	1	7.1	11.00	3	21.4	11	2	14.3
12	2	14.3	13.00	1	7.1	13	1	7.1
13	1	7.1	16.00	1	7.1	16	2	14.3
14	3	21.4	-	-	-	-	-	-
15	2	14.3	Total	10	71.4	Total	9	64.3
17	1	7.1	Missing	4	28.6	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Children's Sleep Habits Questionnaire (CSHQ) total score according to time of data collection

Time 1 (pre-intervention)			Time 5 (Post-intervention)			Time 6 (Post-intervention)		
Score	Frequency	%	Score	Frequency	%	Score	Frequency	%
35	1	7.1	35	1	7.1	32	1	7.1
38	1	7.1	39	2	14.3	35	1	7.1
44	2	14.3	41	2	14.3	37	1	7.1
47	1	7.1	46	2	14.3	40	1	7.1
51	3	21.4	47	1	7.1	41	1	7.1
52	1	7.1	48	1	7.1	49	1	7.1
53	1	7.1	58	1	7.1	61	1	7.1
55	1	7.1	60	1	7.1	63	1	7.1
56	1	7.1	-	-	-	65	1	7.1
61	1	7.1	Total	11	78.6	Total	9	64.3
63	1	7.1	Missing	3	21.4	Missing	5	35.7
Total	14	100	Total	14	100	Total	14	100

Appendix 28. Sleep diary data

Sleep diary: Sleep duration week 1

Sleep duration	Frequency	Percent
161	1	7.1
563	1	7.1
569	1	7.1
578	1	7.1
583	1	7.1
594	1	7.1
597	1	7.1
625	1	7.1
628	1	7.1
648	1	7.1
670	1	7.1
Total	11	78.6
Missing	3	21.4
Total	14	100

Sleep diary: Sleep-onset latency week 1

Sleep-onset latency	Frequency	Percent
7	1	7.1
10	1	7.1
15	1	7.1
16	1	7.1
18	1	7.1
26	1	7.1
34	1	7.1
36	1	7.1
83	1	7.1
Total	9	64.3
Missing	5	35.7
Total	14	100

Sleep diary: Sleep duration week 2

Sleep duration	Frequency	Percent
570.00	1	7.1
575.00	1	7.1
579.00	1	7.1
580.00	1	7.1
603.00	1	7.1
619.00	1	7.1
631.00	1	7.1
679.00	1	7.1
757.00	1	7.1
Total	9	64.3
Missing	5	35.7
Total	14	100

Sleep diary: Sleep-onset latency week 2

Sleep-onset latency	Frequency	Percent
7.00	1	7.1
10.00	1	7.1
15.00	1	7.1
16.00	1	7.1
18.00	1	7.1
26.00	1	7.1
34.00	1	7.1
36.00	1	7.1
83.00	1	7.1
Total	9	64.3
Missing	5	35.7
Total	14	100

Sleep diary: Sleep duration week 3

Sleep duration	Frequency	Percent
570.00	1	7.1
575.00	1	7.1
579.00	1	7.1
580.00	1	7.1
603.00	1	7.1
619.00	1	7.1
631.00	1	7.1
679.00	1	7.1
757.00	1	7.1
Total	9	64.3
Missing	5	35.7
Total	14	100

Sleep diary: Sleep-onset delay week 3

Sleep-onset latency	Frequency	Percent
5.00	1	7.1
7.00	2	14.3
9.00	1	7.1
19.00	1	7.1
24.00	2	14.3
28.00	1	7.1
34.00	1	7.1
79.00	1	7.1
Total	10	71.4
Missing	4	28.6
Total	14	100

Sleep diary: Sleep duration week 4

Sleep duration	Frequency	Percent
526.00	1	7.1
541.00	1	7.1
572.00	1	7.1
591.00	1	7.1
593.00	1	7.1
614.00	1	7.1
631.00	1	7.1
641.00	1	7.1
Total	8	57.1
Missing	6	42.9
Total	14	100

Sleep diary: Sleep-onset delay week 4

Sleep-onset latency	Frequency	Percent
6.00	1	7.1
11.00	1	7.1
13.00	1	7.1
16.00	1	7.1
24.00	1	7.1
39.00	1	7.1
69.00	1	7.1
Total	7	50.0
Missing	7	50.0
Total	14	100

Sleep diary: Sleep duration week 5

Sleep duration	Frequency	Percent
515.00	1	7.1
578.00	1	7.1
584.00	1	7.1
596.00	1	7.1
630.00	1	7.1
666.00	1	7.1
691.00	1	7.1
Total	7	50.0
Missing	7	50.0
Total	14	100

Sleep diary: Sleep-onset latency week 5

Sleep-onset latency	Frequency	Percent
6.00	1	7.1
11.00	1	7.1
13.00	1	7.1
16.00	1	7.1
24.00	1	7.1
39.00	1	7.1
69.00	1	7.1
Total	7	50.0
Missing	7	50.0
Total	14	100

Sleep diary: Sleep duration week 6

Sleep duration	Frequency	Percent
461.00	1	7.1
525.00	1	7.1
547.00	1	7.1
570.00	1	7.1
597.00	1	7.1
604.00	1	7.1
680.00	1	7.1
Total	7	50.0
Missing	7	50.0
Total	14	100

Sleep diary: Sleep-onset latency week 6

Sleep-onset latency	Frequency	Percent
4.00	1	7.1
5.00	1	7.1
9.00	1	7.1
11.00	1	7.1
14.00	1	7.1
30.00	1	7.1
77.00	1	7.1
Total	7	50.0
Missing	7	50.0
Total	14	100

Sleep diary: Sleep duration four weeks post-intervention

Sleep duration	Frequency	Percent
570.00	1	7.1
575.00	1	7.1
579.00	1	7.1
580.00	1	7.1
603.00	1	7.1
619.00	1	7.1
631.00	1	7.1
679.00	1	7.1
757.00	1	7.1
Total	9	64.3
Missing	5	35.7
Total	14	100

Sleep diary: Sleep-onset latency four weeks post-intervention

Sleep-onset latency	Frequency	Percent
7	1	7.1
10	1	7.1
15	1	7.1
16	1	7.1
18	1	7.1
26	1	7.1
34	1	7.1
36	1	7.1
83	1	7.1
Total	9	64.3
Missing	5	35.7
Total	14	100

Sleep diary: Sleep duration eight weeks post-intervention

Sleep duration	Frequency	Percent
	1	7.1
544	1	7.1
575	1	7.1
599	1	7.1
622	1	7.1
626	1	7.1
685	1	7.1
Total	6	42.9
Missing	8	57.1
Total	14	100

Sleep diary: Sleep-onset latency eight weeks post-intervention

Sleep-onset latency	Frequency	Percent
14	1	7.1
17	1	7.1
23	1	7.1
24	2	14.3
28	1	7.1
138	1	7.1
Total	7	50
Missing	7	50
Total	7	100

RQ five: How do selected participants describe individual primary school-aged children's sleep-related experiences?

Step 1: Familiarisation of the data, through actively and repeatedly reading the data to identify semantic patterns before coding commenced:

- Data transcription.
- Reading and re-reading the data to identify initial ideas.

Step 2: Generating initial codes:

- Data entered into the NVivo software according to selected participants' data transcripts.
- Systematically coding interesting aspects of the data.
- Collating data according to each code.

Initial codes for research question five

Name	Sources	References
Routines	1	5
Comparing sleep	4	4
Improving sleep	4	6
Motivations to stay awake	2	3
Feelings	5	8
Sleep-related behaviour	6	17
Sleep beliefs	4	8
Support	5	28
Things that do not help sleep	6	22

Step 3: Searching for themes:

- Sorting codes from the data into potential themes.
- Collating all relevant data under each theme.

An example of the sorting process of codes into potential themes for a case study in NVivo

The screenshot shows the NVivo interface. On the left, a text document titled 'Kyle' is open, containing several paragraphs of text. Some words are highlighted in yellow, such as 'rude' and 'un'. On the right, a coding density chart is displayed, showing various codes and their density across the text. The codes are represented by colored bars of varying lengths, indicating their frequency or density. The codes include: Sleep targets, Thoughts, Environmental factors, Disturbed by others, Routines, Changes in routine, Relationships with others, Social factors, Professional support, History of sleep difficulties, Behaviour, Fears and anxieties, Feelings, Strategies tried, and Sleep behaviour. The chart also shows a 'Coding Density' axis on the left side.

Step 4: Reviewing themes:

- Checking if the themes support the coded extracts.
- Reviewing the data to identify additional themes.
- Creating a thematic map from the data analysis (as in the text).

Final themes for research question five.

Name	Source(s)	References
Behaviour	6	64
Environmental factors	2	3
Feelings	6	21
History of sleep difficulties	2	5
Individual and health factors	3	5
Problem-solving	6	29
Social factors	5	15
Thoughts	6	24

Step 5: Defining and naming themes:

- Continued analysis to refine each theme.
- Checking the narrative that the analysis creates.
- Clearly defining and naming each theme (see table below of final codes and themes).

Step 6: Producing evidence of the themes identified in the data (as in the text):

- Identification of extract examples.
- Analysis of the chosen extracts.
- Linking of the analysis to the research question.

RQ5: How do selected participants report and describe individual primary school-aged children’s sleep-related experiences?

A sample of supporting information for the final codes and themes for research question five

Raw data	Code	Sub-theme	Theme	Definition of the theme
<p>“I stayed up all night playing Roblox on the iPad”.</p> <p>“If I wake up I play Fifa or watch Youtube 'cause i'm not tired but my mum shouts at me”.</p> <p>“Sometimes I stay up reading a whole chapter” [of a book].</p> <p>“I don’t want to sleep if I’m playing my game or watching my show”.</p>	Using stimuli (books or technology)	Motivation to stay awake (books or technology)	Behaviour	Sleep-related behaviours, routines, and behavioural motivators.
<p>“I feel sad because I haven’t got enough sleep”.</p>	Sleep associations (negative feeling)	Fears and anxieties	Feelings	Feelings, fears, and anxieties that participants associated with their sleep.
<p>“Late to sleep due to a rash –</p>	Factors	N/A	Individual and	Factors that had an impact on a child’s sleep

treated”.	affecting sleep (biological factors)		health factors	such as illness or a diagnosed condition.
“He has had difficulty with his sleep since birth, and since this time, he has had occasional difficulties with going to sleep and with being alone and to settle himself to sleep”.	Factors affecting sleep (history of sleep problems)	N/A	History of sleep difficulties	Undiagnosed difficulties with sleep that have had an impact on the child.
“Things that keep me up: My brother, my dad playing the guitar, people outside”.	Factors affecting sleep (external factors – less control)	Disturbance	Environmental factors	Factors within the child’s environment that have an impact on their sleep, things the children cannot control.
“Sometimes books make me fall asleep”. “Sleep helps you to relax”.	Sleep associations (positive aspects)	Sleep beliefs	Thoughts	Beliefs and thought associations that were expressed.

<p>[Set herself a target that she would like to have better consistency with bedtimes].</p> <p>When Oscar head bangs mum will put her hand to Oscar's back to help to soothe him. She has sometimes woken him up if the head banging did not stop.</p>	<p>Steps taken to try to improve sleep.</p>	<p>Strategies</p>	<p>Problem solving</p>	<p>Steps that participants have taken or planned to take to improve the child's sleep-related experiences. This is associated with parental awareness as without this, problem solving cannot take place.</p>
<p>"Kyle can find it difficult to fall asleep once his brother has fallen asleep and he then feels alone, which he finds difficult".</p>	<p>Impact of sharing a bedroom</p>	<p>Relationships with others.</p>	<p>Social factors</p>	<p>Relational factors that participants mentioned that were associated with the child's sleep, such as relationships or observations of others' sleep patterns.</p>

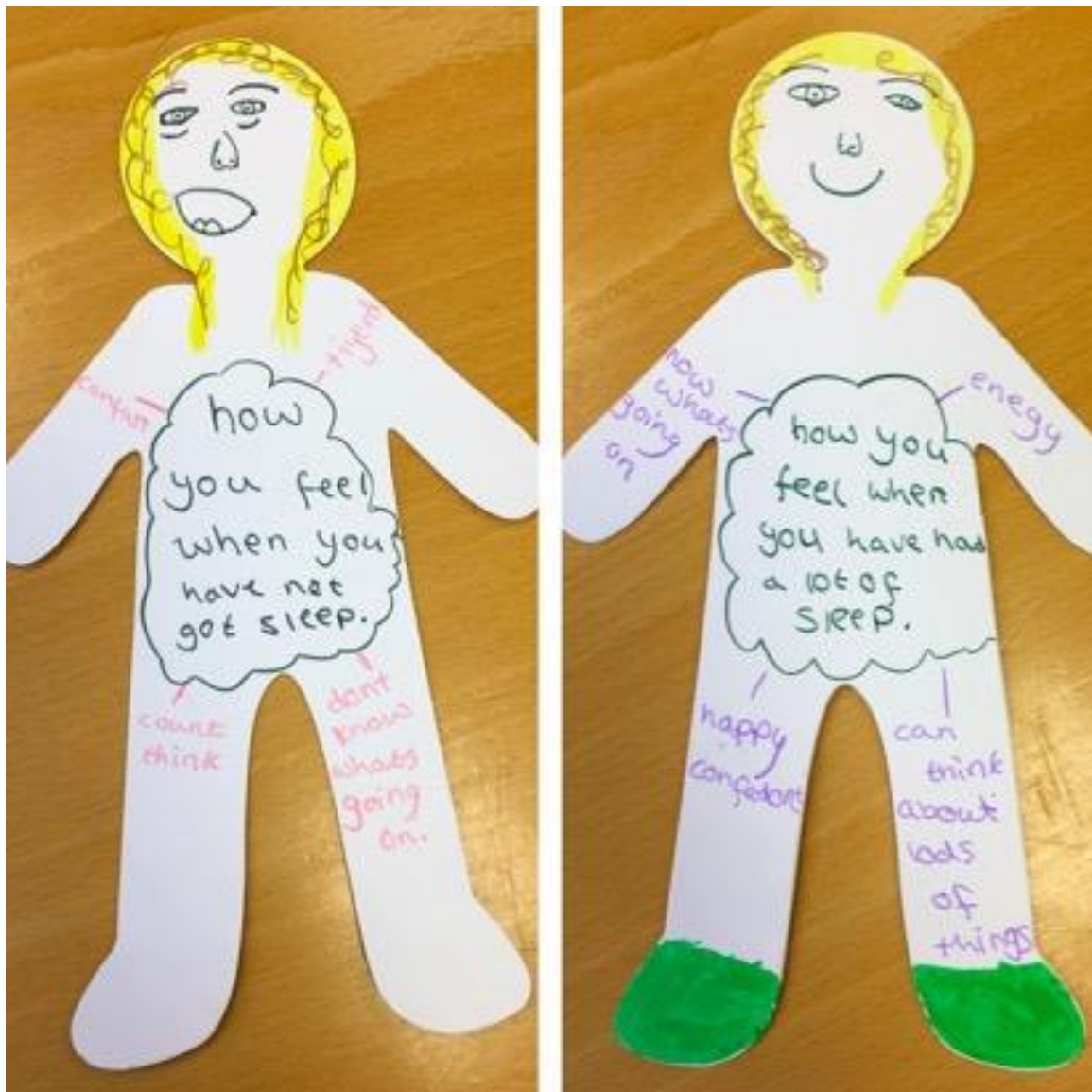
Appendix 30. Eddie's sleep feelings



Appendix 31. Kyle's sleep feelings



Appendix 32. Sara's sleep feelings



Appendix 33. Oscar's sleep feelings



Appendix 34. Gordon's sleep feelings



RQ Seven: How do participants evaluate the Sleep Club intervention and process?

Step 1: Familiarisation of the data, through actively and repeatedly reading the data to identify semantic patterns before coding commenced:

- Data transcription.
- Reading and re-reading the data to identify initial ideas.

Step 2: Generating initial codes:

- Data entered into the NVivo software according to participant group (e.g. child, parent, TA) data transcripts obtained from question seven.
- Systematically coding interesting aspects of the data.
- Collating data according to each code.

Initial codes for research question seven

Name	Source(s)	References
Areas for improvement	2	28
Areas of strength	3	143
Participation	2	8
Child participation	2	3
Parent participation	2	5
Relationships with others	2	10
Resources and strategies	2	4
Sleep-related behaviour changes	2	10
Support	1	2

Things liked about the Sleep Club intervention	3	75
Thoughts and feelings	1	7
Sleep Club Process	3	18
Delivery	2	2
Timing of sessions	2	6

Step 3: Searching for themes:

- Sorting codes into potential themes.
- Collating all relevant data under each theme.

An example of the coding process of the evaluations in NVivo

The screenshot shows the NVivo interface for a document titled 'Child evaluation'. The main window contains a table with two rows of text. The first row is 'Name three things you like/or that was good about the Sleep Club' and the second row is 'What could have been better?'. The text in the table is color-coded by theme. On the right side, a vertical bar shows the density of codes for various themes, with labels like 'Engagement', 'Learning', 'Practical support', 'Positive experiences and perceptions', 'Relationships with others', 'Promoting change', 'Relaxation activities', 'Rewards', 'About feelings and emotions', 'Resources and strategies', 'Intervention structure', and 'Data recording'.

Name three things you like/or that was good about the Sleep Club	Sleep facts Helping sleep times How to improve	-Being happy -Getting enough sleep -Keeping active	-prizes new things about sleep -cooperating with other people to do activities	-The prizes -Learning about sleep -Learning with others	-Helpful -Interesting -good	-Relaxing -Helped at home with sleeping	The man (colouring) The videos The brain	It is good to do it.	I like prizes I like activities
What could have been better?	-	Nothing	More activities	-More frequent sessions -Lasts after	Would have liked to have lasted longer	Cannot think of anything	All good	Having a prize	All prizes

Step 4: Reviewing themes:

- Checking if the themes support the coded extracts.
- Reviewing the data to identify additional themes.
- Creating a thematic map from the data analysis.

Final themes and codes for research question seven

Name	Source(s)	References
Engagement	Child, parent, TA	71
Learning		30
Practical support	Child, parent, TA	45

TA= Teaching assistant (School staff)

Step 5: Defining and naming themes:

- Continued analysis to refine each theme.
- Checking the narrative that the analysis creates.
- Clearly defining and naming each theme (see table below of final codes and themes).

Step 6: Producing evidence of the themes identified in the data (as in the text):

- Identification of extract examples.
- Analysis of the chosen extracts.
- Linking of the analysis to the research question.

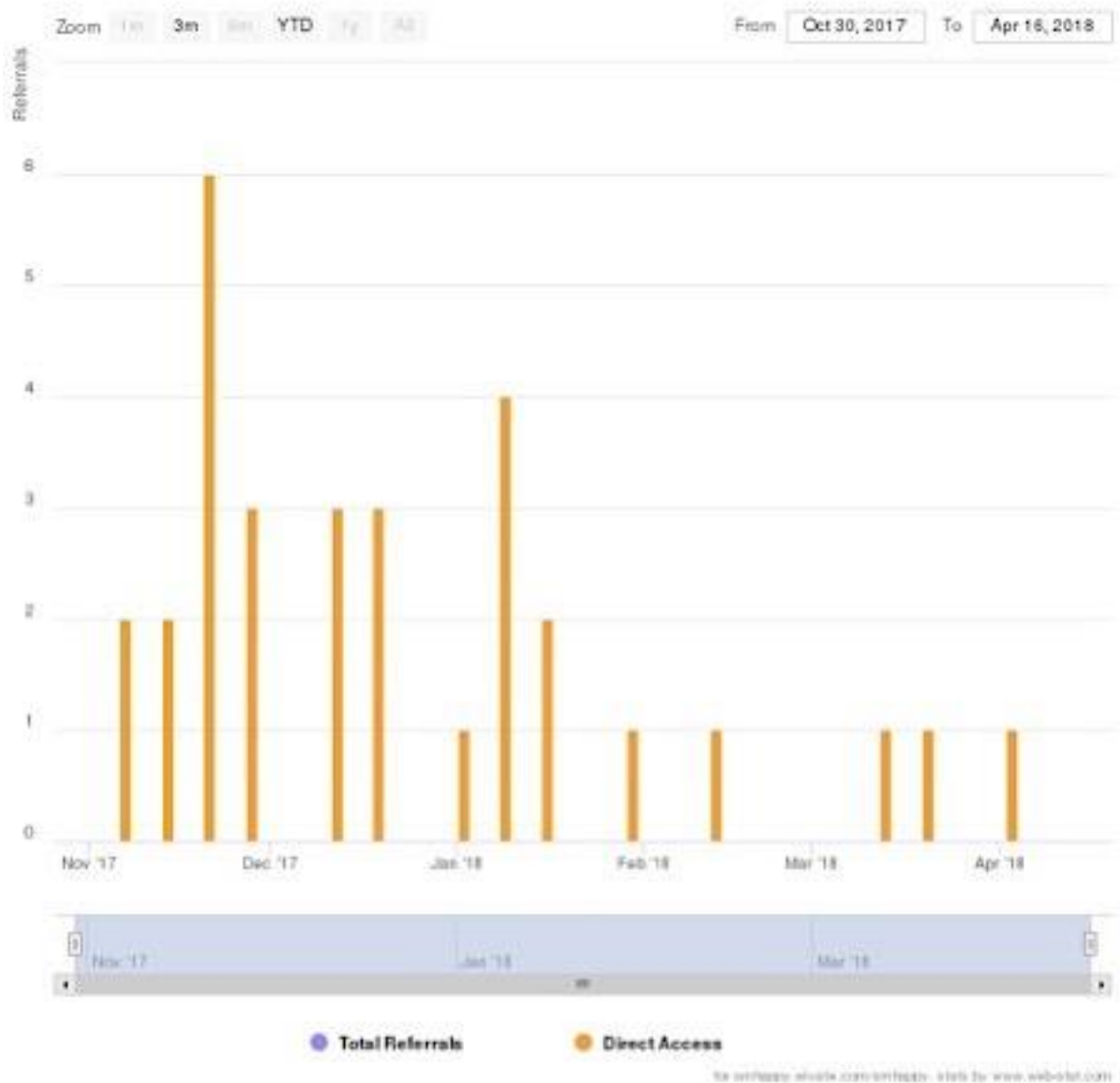
RQ7: How do participants evaluate the Sleep Club intervention and process?

A sample of supporting information for the final codes and themes for research question seven

Raw data	Code	Sub-theme	Theme	Definition of the theme
<p>“Children were engaged and understood information”. (TA)</p> <p>“Encouraged openness about sleep behaviours and motivations behind them”. (P)</p> <p>“We can tell her anything [anything] and can be onist” [honest] (C)</p>	<p>Children attended to the information in the sessions.</p>	<p>Participation</p> <p>Positive experience and perceptions</p> <p>Relationships with others</p>	<p>Engagement</p>	<p>Experiences of the Sleep Club sessions and wider impact through participation.</p>
<p>“He enjoyed learning and being part of a club”. (P)</p> <p>“He loves to know why things are as they are etc. so he has enjoyed learning about sleep strategies”. (P)</p>	<p>Learning about sleep-related information</p>	<p>Feelings and emotions</p> <p>Sleep and the body</p>	<p>Learning</p>	<p>Areas of specific learning that participants have noted about the Sleep Club sessions.</p>

<p>“Good, could’ve been longer”. (P)</p> <p>“Lasts after six weeks”. (C)</p> <p>“Not doing questionnaires”. (C)</p> <p>“Relaxation techniques were effective”. (T)</p> <p>“Useful materials”. (P)</p> <p>“Sleep diaries”. (P)</p> <p>“Son enjoyed the club and toys!” (P)</p>	<p>Positive and negative aspects of the intervention.</p>	<p>Intervention structure</p> <p>Relaxation activities</p> <p>Resources and strategies</p> <p>Rewards</p>	<p>Practical support</p>	<p>Participants’ experiences of what was offered through the Sleep Club intervention and process.</p>
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Appendix 36. Sleep Me Happy website data



Sleep Me Happy website analytics

This figure illustrates the number of visitors to the Sleep Me Happy website between November 2017 to April 2018. Visitors can only access the website with the Uniform Resource Locator (URL), which was provided to parents in the Sleep Me Happy Booklet.

All-In-One for smhappy.wixsite.com/smhappy

Appendix 37. Email from Kyle's mother

Begin forwarded message:

From:

Subject: Re: Telephone Consultation recommendations

Date: 26 February 2018 at 19:51:01 GMT

To: "De'Cage, Sanchia" <_____@exeter.ac.uk>

Hi Sanchia

I'm sorry for not replying earlier - the email just got lost amongst a lot of others and I forgot to reply. The information you sent was really useful thank you. I have since met up with the SENCO who has put a few things in place for **Kyle** and he is enjoying the group re anxiety/social skills. He has declined other interventions but we've pursued a new friendship with a classmate which was suggested by the SENCO and this has also been very positive.

Bedtime routine had improved until this past week when **Kyle** developed a cold and a hacking cough has since kept us all awake!

I will return the questionnaires this week.

Once again, many thanks for all your help. I'm really glad we took part in the study and hope you get the results for your project.

Wishing you well in your future career.

Kind regards

[Parent of Kyle] ANON

Appendix 38. Phase two attrition rates

Item	Week/Time	Obtained	Response rate
Sleep diaries			
Sleep onset and duration data	Twenty-eight pieces of sleep diary information are expected due to two pieces of information being required per child (n=14).		
	1	22/28	79%
	2	18/28	64%
	3	28/28	64%
	4	16/28	57%
	5	14/28	50%
	6	14/28	50%
	Time 5	15/28	54%
	Time 6	14/28	50%
Sleep Measures			
SSR	Time 1	14/14	100%
	Time 5	14/14	100%
	Time 6	11/14	79%
The CSHQ	Time 1	13/14	93%
	Time 5	10/14	71%
	Time 6	9/14	64%
Evaluation			
Child	Time 5	14/14	100%
Teaching assistant	Time 5	2/2	100%
Parent	Time 6	9/14 [^]	64%
Sleep knowledge			
Quiz	Time 1	14/14	100%
	Time 5	14/14	100%

[^]One parent had two children taking part in the research.

-Time 1 – Pre-intervention

-Time 5 – Four weeks' post-intervention

-Time 6 – Eight weeks' post-intervention