

## An Exploration of Current Research into the Prevalence, Aetiology and Impact of Sleep Difficulties in Children and Young People with Autism Spectrum Disorder, Using the Evidence to Provide Effective Intervention

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### Why Develop an Understanding of Autism Spectrum Disorder and Sleep?

Autism spectrum disorder (ASD) is a group of neurodevelopmental disabilities characterised by persistent difficulties evident in early development (Singh & Zimmerman, 2015). These difficulties include social communication and interaction, sensory sensitivities, and flexibility of thinking. Those with ASD can also experience a number of comorbid medical disorders, including the presence of sleep disorders (Ming, 2009). It is said that children and young people (CYP) with ASD are at high risk for sleep disturbance, difficulties with falling asleep and staying asleep (Mazurek, Engelhardt, Hilgard, & Sohl, 2016). These problematic sleep patterns presented are often severe in nature, and it is estimated that sleep disturbances affect between 50 and 95 per cent of children with neurodevelopmental disorders (Ming, 2009; Corkum, Davidson, Tan-MacNeill, & Weiss, 2014).

Sleep is important for the healthy development of all children (Corkum et al., 2014). It is now considered that the co-occurrence between ASD and sleep difficulties is prevalent enough that it may be characteristic of the ASD phenotype (Richdale & Prior, 1995, as cited in Corkum et al, 2014). These reported sleep difficulties are said to have a negative impact on not only the daytime functioning of children with ASD but also the quality of life for both the CYP and their families (Corkum et al., 2014). Higher levels of stress, poor quality and fragmented sleep are reported in parents of children with ASD when compared to parents of children with typical development (TD) or children with other disabilities (Elrod & Hood, 2015).

Within my own practice as a trainee educational psychologist, I have been faced numerous times with families of children with ASD who have sleep difficulties. Many believed they have explored every avenue to improve their child's sleep; others have inevitably grown tired of the 'sleep battle' and developed their own norm. This can involve co-sleeping, restricted sleeping (for both child and parent) and the use of devices, amongst others. As such, I was motivated to explore further the research which has been conducted into sleep difficulties experienced by children with ASD. This included exploring the prevalence and aetiological basis for the sleep difficulties experienced and, following this, implications for intervention.

### How Do Sleep Difficulties Present in CYP with ASD?

How do sleep difficulties compare to children with typical development?

Previous research has focused on whether those with ASD experience more persistent or qualitatively different sleep difficulties compared to children with TD. The types of sleep problems in

children with ASD are proposed to be qualitatively similar to those experienced by children with TD but experienced at a higher rate (Singh & Zimmerman, 2015). Mothers of children with ASD have reported more sleep problems than mothers of children with TD, both in terms of quality and quantity of sleep (Hodge, Carollo, Lewin, Hoffman, & Sweeney, 2014). It has been found that parents reported sleep problems for children with ASD ranges between 50 and 80 per cent compared to 9 to 50 per cent of comparison groups (Richdale & Schreck, 2009).

Hodge et al. found, when combining age ranges of CYP between 3 and 17 years, children with ASD differed significantly from children with TD in regards to parental reports of high levels of bedtime resistance, longer sleep onset delay, more problems with sleep duration, greater sleep anxiety, more night wakings and more sleep disordered breathing (Hodge et al., 2014). A systematic review by Elrod and Hood (2015) of objective measures of sleep difficulties also found that, on average, children with ASD had shortened total sleep time, longer sleep latency and lower sleep efficiency compared to their TD peers.

Richdale and Schreck (2009) noted that the frequency of night waking in children with ASD was found to be similar to comparison TD children. The difference observed, however, was the frequency of night waking in children with ASD; this often involves lengthy periods (two to three hours) where the child may vocalise, wake in the night screaming or get up and play in their room as they would during the day. Sleep problems of children with ASD are more likely to persist with age when compared to children with TD (Hodge et al., 2014).

#### What are the sleep difficulties experienced by CYP with ASD?

It has been noted that the most common sleep problems experienced by CYP with ASD appear behavioural in nature (Richdale & Schreck, 2009; Corkum et al., 2014). They include bedtime resistance, difficulty falling asleep and night-time awakening; all of which impact on sleep and can shorten the total sleep time for a child with ASD (Corkum et al., 2014). In a survey of 500 children with ASD, Williams et al. (2004, as cited in Singh & Zimmerman, 2015) found that problems with sleep onset delay were the most frequently reported complaint.

Ming (2009) found a high occurrence of parasomnia in children with ASD, measured using PSGs (polysomnography). Parasomnias are disruptive sleep disorders that can occur during arousal from REM (rapid eye movement) sleep or partial arousal from non-REM sleep. They include nightmares, night terrors, sleep walking and confusional arousal, amongst many others. It was found that 60.8 per cent of the 13 children included in the study presented with disorders of partial arousal (DPA), with a high occurrence of multiple episodes of partial arousal in 11 children. It was suggested that DPA may, in part, explain sleep disruption, night awakening and disorientation on awakening reported in parental questionnaires.

#### Aetiology of Sleep Difficulties in CYP with ASD

Understanding the basis of sleep difficulties in CYP with ASD is important when considering interventions to aid sleep, and it is argued that sleep difficulties in CYP with ASD are best thought of using a biopsychosocial framework (Corkum et al., 2014).

#### Biological Factors

Children with ASD often present with comorbid medical conditions which may contribute to sleep difficulties. These include epilepsy and gastrointestinal disorders, which can not only disrupt sleep but also be compounded by medication used to treat them. Further to this, deficits in language and communication typical in CYP with ASD make it difficult to communicate when they are in pain and discomfort (Singh & Zimmerman, 2015)

Ming (2009) found sleep architecture to be abnormal in children with ASD. This was characterised by significant increase of spontaneous arousals and reduced REM (rapid eye movement) percentage. Whilst it was suggested that this may provide some explanation for observed sleep disruption and night awakening accompanied by disorientation upon awakening observed in children with ASD, the cause of this is not yet known.

It has also been suggested that children with ASD may have differing levels of melatonin and serotonin production, impacting on their capacity to establish a 24-hour sleep–wake cycle (Hodge et al., 2014). One consistent finding amongst the research into ASD and sleep is that poor sleep patterns affect CYP with ASD, regardless of their cognitive functioning levels (Adkins et al., 2012, as cited in Johnson & Shui, 2015; Hirata et al., 2015).

## Psychological or Behavioural Factors

### Anxiety

Anxiety is a comorbid condition increasingly prevalent in CYP with ASD (Richdale & Schreck, 2009). It has been reported that 40 per cent of children with ASD met the criteria for at least one anxiety disorder, as identified in the DSM-IV (Steensel et al., 2011, as cited in Johnson & Shui, 2015). In an explorative study into the relationship between anxiety and sleep in young children with ASD (118 children with a mean age of 3.97 years), 20 per cent were found to present with clinically significant anxiety when measured using the Child Behavior Checklist (CBCL, Achenbach, 1991; Johnson & Shui, 2015)

Mazurek (2014) found that anxiety was significantly associated with all types of sleep problems in CYP with ASD, with a positive correlation found between anxiety and bedtime resistance, sleep onset delay, sleep duration, sleep anxiety and night waking. In addition to this, May (2015) found that sleep disturbance measured at baseline predicted later anxiety in both children with TD and those with Asperger's syndrome. Parents are also more likely to report sleep disturbances in their children with ASD when anxiety symptoms are rated as high (Johnson & Shui, 2015).

### Characteristics of ASD

It has also been argued that the core symptoms of neurodevelopmental disorders, such as ASD, may increase their risk of insomnia. These include intrinsic behaviours, such as emotional dysregulation, repetitive thoughts which may affect their ability to settle at bedtime, in addition to the difficulties in understanding social communication cue related to sleep (Corkum et al., 2014; Singh & Zimmerman, 2015).

Sensory over-responsivity has been found to be significantly correlated with sleep onset delay, sleep duration and night waking in both younger and older age groups (2–5 years and 6–18 years; Mazurek, 2014). Sensitivity to environmental stimuli at night and those who demonstrated tendencies to awaken have been found to show more autistic-type communication patterns on the GARS (Gilliam Autism Rating Scale, Gilliam, 1995) (Schreck, Mulick, & Smith, 2004).

## Environmental Factors

Historically, the impact of the environment has received relatively little attention (Mazurek et al., 2016). More recently, sleep hygiene has been a focus of early intervention. Amongst other things, this includes providing an optimal sleeping environment for CYP with ASD (Singh & Zimmerman, 2015).

There has also been an increased interest in the use of media and electronic equipment, coinciding with its prevalence in recent years (Singh & Zimmerman, 2015). Ninety-seven per cent of students in the United States are said to have at least one electronic device in their bedroom (Hale & Guan, 2015). It has been hypothesised that screen time results in less actual time for sleep, increased psychological and physiological arousal as a result of the content and the effect of light on the circadian rhythm, all potentially impacting on insufficient and low quality sleep (Hale & Guan, 2015).

It has been argued that all of these factors can impact of sleep in children with ASD and result in a vicious feedback loop, whereby they can exacerbate insomnia and, in turn, are themselves exacerbated by insomnia (Reynolds & Malow, 2011, as cited in Singh & Zimmerman, 2015). As demonstrated, the aetiology of insomnia remained to be fully explained, but it is likely to multifactorial.

### The Impact of Sleep on Special Educational Needs

It has been argued that the impact of sleep problems on daytime behaviour has previously been somewhat ignored and that it is important to consider investigation of sleep problems when supporting children with ASD who present behaviour difficulties (Richdale & Schreck, 2009).

Sleep disturbance is associated with a long list of additional behavioural issues, and the adverse impact of sleep difficulties on CYP with ASD has been widely reported (Goldman, Richdale, Clemons, & Malow, 2012). It is argued that it is important to assess behaviours associated with ASD, as night-time insomnia and daytime sleepiness may present as hyperactivity and increased core ASD behaviours (Singh & Zimmerman, 2015; Johnson & Schreck, 2009; Goldman, Surdyka, Cuevas, Adkins, Wang, & Malow, 2009).

Current research remains somewhat limited, however, and has struggled to distinguish whether sleep problems cause daytime behaviour problems, sustain problems which already exist or exacerbate these pre-existing problems (Wiggs & Stores, 1996, as cited in Schreck et al., 2004). However, a recent study by Hirata et al. (2015) compared behavioural problems between children with and without sleep problems. They found that preschoolers with ASD and sleep difficulties were found to have significantly more behavioural problems than children with ASD who did not experience sleep problems.

Schreck, Mulick, and Smith (2004) found that the fewer hours the child reportedly slept per night moderately predicted the severity of stereotypic behaviours and social difficulties, as measured on the GARS (Gilliam Autism Rating Scale, Gilliam, 1995). There is currently limited evidence as to the possible impact of sleep difficulties on the cognitive function of CYP with ASD (Richdale & Schreck, 2009).

### Implications of Current Research: What Does This Mean for Supporting Children and Young People with ASD with Sleep Difficulties and Their Families?

Given reported high rates of sleep problems in CYP with ASD and the suggested impact on both the children and their families, the need for empirically supported interventions is essential (Vriend, Corkum, Moon, & Smith, 2011). Treatment of sleep disorders in CYP with ASD, like its aetiology, is multifactorial (Singh & Zimmerman, 2015). It is argued that if no primary treatable causes of sleep disorders are identified, insomnia is addressed through a mixture of good sleep hygiene, environment and behavioural interventions (*op. cit.*). Williams et al. (2006) also found that parents of children with ASD preferred behavioural approaches as opposed to sleep-enhancing medication.

## Sleep hygiene

In line with this, the importance of sleep hygiene and parental education has been emphasised (Corkum et al., 2014; Allen et al., 2016). Sleep hygiene includes a consistent sleep schedule, the creation of bedtime routines, reducing stimulating activity before bed and improving the sleep environment (Vriend et al., 2011).

Bessey, Coulombe, and Corkum (2013) created a mnemonic 'ABCs of SLEEPING' which reflected practices and constructs typically targeted by recommendations when attempting to promote healthy sleep. This includes, amongst others, schedules and routines, electronics, exercise and diet, independence, and needs met through the day.

Subsequently, Allen, Howlett, Coulombe, and Corkum (2016) provided a review which examined the empirical evidence for the practices and recommendations included in the above mnemonic. Those with strong evidence of impact on sleep problems on CYP with TD will be presented below. It is important to acknowledge that the sample here involves children with TD with behavioural sleep problems. It has been argued that it is not sufficient to merely transfer what is understood about sleep in those with TD to CYP with ASD, as what brings about and sustains sleep difficulties in CYP with ASD may indeed be related to atypical as opposed to typical development (Richdale & Schreck, 2009). That said, this research is interesting when considered alongside research which includes CYP with ASD. It is also acknowledged that understanding of ASD, individual children's characteristics and the family is required to further tailor interventions to CYP with ASD (Vriend et al., 2011).

## Bedtime routines

Strong support has been found for the role bedtime routines play in helping 'set the stage' for healthy sleep outcomes in CYP with TD (Allen et al., 2016). Those studies which included a reasonably brief bedtime routine (less than 30 minutes) which included a series of calming activities such as bath time, massage and storytelling consistently led to improvements in sleep. In support of this, Mindall et al. (2010, as cited in Tatsumi, Mohri, Shimizu, Tachibana, Ohno, & Taniike, 2014) reported that establishing consistent nightly bedtime routines such as cuddling or lullabies with light off within 30 minutes of having bath were beneficial in improving various aspects of infant sleep, particularly wakefulness and continuity of sleep.

Research indicates that children with TD and ASD have similar bedtimes and wake times but that, in children with ASD, settling and night wakening problems (insomnia) are often associated with inappropriate bedtimes or associations such as falling asleep on the sofa (Hodge et al., 2014; Richdale & Schreck, 2009). Allen et al. (2016) found, in a review of research into behavioural sleep problems in children with TD, children who were put to bed after they had fallen asleep had shorter sleep durations and were more likely to call out for their parents or stay in their bed during the night.

Singh and Zimmerman (2015) highlighted the importance of consistent bedtime routine with little night to night variability in children with ASD. This can consist of simple bedtime tasks and activities performed daily, which may help with supporting circadian rhythms by serving as time cues. Visual reminder such as photo stories can be helpful to reinforce routines for CYP with ASD. Corkum et al., 2014 suggest children with neurodevelopmental disorders may need additional time to transition between activities and increased verbal prompts. In addition to this, it is suggested that children with ASD may require a small amount of variance in their bedtime routine to avoid it becoming too rigid and acting as a hindrance (for example, reading different books) (Kodak and Piazza, 2008, as cited in Corkum et al., 2014).

## Electronic use

Research has consistently found an adverse association between screen time and sleep outcomes: primarily shortened duration and delayed onset of sleep (Hale & Guan, 2015). All but one of the studies reviewed by Allen et al. (n=14) found a significant association between increased electronic use (here, television watching) and sleep outcomes.

Mazurek et al. (2016) conducted a study into the use of screen-based media at bedtime with children with ASD (101 children with a mean age of 10.5 years). It was found that, when media was used as part of the bedtime routine, there was significantly greater sleep onset latency than those who did not (39.8 vs 16 minutes). Furthermore, children exposed to media with violent content within 30 minutes of bedtime experienced significantly greater onset delays and shorter overall sleep duration. Interestingly, contrary to previous advice which recommended the removal of devices from the bedroom (Corkum et al., 2014), the presence of bedroom media alone here was not associated with any of the above sleep difficulties.

It has been suggested that exposure to bright light emitted by electronic media may suppress melatonin secretion in addition to the cognitive and physiological arousal which may impact on sleep initiation (Hale & Guan, 2015; Mazurek, 2016). Wood et al. (2013) found that iPads set to full brightness caused statistically significant melatonin suppression after two hours of use but not from only one hour (Wood et al., 2013, as cited in Hale & Guan, 2015). Further to this, exposure to room light before bedtime has been found to suppress melatonin secretion duration by approximately 90 minutes and presleep melatonin was reduced by 71.4 per cent (Gooley et al. 2011, as cited in Singh & Zimmerman, 2015).

## Physical activity

Allen et al. (2016) found little evidence to support the recommendation of exercise and noted that the exact relationship between physical activity and sleep outcomes needs further study. Interestingly, previous research has indicated that, in children with TD, physical activity is associated with quantity and quality of sleep (Foti et al., 2011, as cited in Tatsumi et al., 2014).

Tatsumi et al., 2014 investigated the effect of daytime physical activity on preschoolers with developmental disorders and found that morning and afternoon physical activity (but not evening physical activity) resulted in earlier sleep onset in children with ASD. Interestingly, physical activity was found to be significantly lower at the weekend for children with ASD compared to control children, which may additionally impact on their sleep-wake cycles. Although the mechanism is currently unknown, as highlighted by Allen et al., one suggestion is that physical activity may regulate circadian rhythms amongst ASD children through increased serotonin and melatonin secretion.

## Independence

Being able to achieve independence in falling asleep is critical for the development of healthy sleep (Allen et al., 2016, p10). The research examined by Allen included various definitions of co-sleeping, which included reactive (a parent or child response to night awakening) and bed sharing. It was found that children with TD who shared a bed with their parents had higher rates of daytime sleepiness and sleep-related anxiety, although sleep duration was not affected (Lui, Lui, & Wang, 2003, as cited in Allen et al., 2016). Reactive co-sleeping was associated with increased night awakenings. Furthermore, support was found for limiting parental presence at bedtime, as this was associated with later bedtimes, shorter sleep durations and increased night wakings.

### Emotional wellbeing

Findings from Allen et al.'s (2016) review indicate the importance of emotional wellbeing for healthy sleep in CYP with TD, and it is recommended that clinicians should consider how a child's emotional needs may contribute to or complicate sleep problems (Allen et al., 2016). Johnson and Shui (2015) suggest that elevated anxiety symptoms in CYP with ASD should prompt further investigation about the child's sleep and vice versa. This evidence suggests the need for practitioners to consider anxiety interventions and the implications for intervention planning (May, 2015; Johnson & Shui, 2015).

### Parental education

Current research supports the importance of parental education in children with TD and considering the role parental attitudes towards sleep or parental approaches play in maintaining or intensifying sleep problems (Allen et al., 2016). Significant improvements in measures of sleep health have been reported by parents of children with ASD with chronic sleep problems, following a workshop which taught parents how to establish effective daytime and bedtime routines and habits and improve their parent-child interaction during bedtimes and night-time awakenings (Reed, McGrew, Artibee, et al., 2009, as cited in Singh & Zimmerman, 2015). Thus, ensuring parents have access to accurate information about sleep is key, as this impacts on parental beliefs around sleep and their use of strategies, which ultimately impacts on their child's sleep (Corkum et al., 2014).

### Specific Behavioural Strategies

Whilst sleep hygiene is said to be a necessary component of sleep intervention, it is not sufficient on its own to remove sleep difficulties (Vriend et al., 2011). Instead, it is argued that it is commonly included as an element of more intensive behavioural sleep interventions (Vriend et al., 2011). There is evidence that several specific behavioural strategies have been effective in children with TD who experience sleep problems, and this may extend to CYP with ASD (Corkum et al., 2014).

Vriend et al. (2011) conducted a review of the existing research into behavioural interventions for sleep problems in children with ASD. This included 15 published studies, many of which had significant methodological drawbacks, such as heterogeneous samples or children with ASD with comorbid conditions. It was found that only one met the criteria for possibly efficacious interventions in children with ASD. This was scheduled awakening, involving parents awaking and consoling their child 15 to 30 minutes prior to their typical spontaneous awakening. From a review conducted by Schreck (2001), standard extinction was also identified: when child is put to bed at a designated time, and any attempt by the child to gain their parents attention is ignored until a set time in the morning. Scheduled awakening may be predominantly effective for reducing night terrors, whereas standard extinction may be an effective strategy for co-sleeping and night waking (Vriend et al., 2011).

### Pharmacological treatment

The use of pharmacologic therapy should be explored either alongside the behavioural interventions described above or if the behavioural measures implemented prove to have limited impact (Singh & Zimmerman, 2015). The evidence on the impact of melatonin on sleep in CYP with TD is currently mixed. Significant improvements have also been observed on the internalising subscale of the CBCL in children with Asperger's Syndrome when the use of melatonin results in improved symptoms of insomnia (Paavonen, Nieminen – von Wendt, Vanhala, Aronen and von Wendt, 2003, as cited in Richdale & Schreck, 2009). Another study noted that normalisation of sleep was not observed in children on melatonin but that parents perceived the medication to be of help (Souders, Mason,

Valladares, et al., 2009, as cited in Elrod & Hood, 2015), suggesting that parents are acutely aware of even slight changes in their children's quality of sleep.

Interestingly, Souders et al. described the use of sleep medication as a predictor of sleep disturbances, as children with medication's sleep parameters were more affected than those not taking medication. This may reflect the staged approach noted by Corkum et al. in which medication with behavioural strategies represent the final stage in the treatment of behavioural sleep problems, with parental education, sleep hygiene and specific behavioural strategies preceding it (Weiss & Corkum, 2012, as cited in Corkum et al., 2014).

## Limitations of Current Research

### Methodological drawbacks

Current research has made it difficult to make firm conclusions based on the findings, which in turn feed into evidence-based interventions. A causal relationship between ASD and sleep difficulties is yet to be definitely proven (Tatsumi et al., 2014). This also applies to the causal association of screen time on sleep (Hale & Guan, 2015).

Previous research into the reported difficulties of children with ASD and sleep problems is said to have been potentially affected by the reliability of the research conducted, with issues related to both sample size and sample composition (Richdale & Schreck, 2009). Much of the research is also reliant on parental reports, as opposed to child self-report, perhaps due to the frequent difficulties with communication often experienced by children with ASD. The lack of longitudinal studies required to understand continuity and discontinuity of sleep has been highlighted and subsequently hinders the ability to draw firm conclusions based on the data (Hodge et al., 2014).

### More sensitive instruments for measuring sleep difficulties in CYP with ASD are needed

One of the most common instruments used is the Children's Sleep Habits Questionnaire (CSHQ, Owens et al., 2001): a parent report measure of sleep disturbance across eight different sleep domains with solid psychometric properties (Mazurek et al., 2016). Despite the popularity of use with CYP with ASD, this is standardised on TD children (Johnson & Shui, 2015). Johnson et al. (2016) evaluated the psychometric properties of the CSHQ in 310 children with ASD, aged between 2 and 10 years. It was concluded that, although it had acceptable psychometric properties, the results gained suggested that it may not be optimally designed to assess commonly occurring sleep problems found in children with ASD. It must, therefore, currently be used, and the results gained taken, with caution. They suggest that modifications to the existing CSHQ could strengthen its use for this subset, in line with the difficulties known to be experienced by CYP with ASD.

Many have highlighted the limitations of parent reports, with what parents consider a sleep problem said to be subjective and influenced by factors such as cultural and beliefs around what is normal sleep for a child (Robinson & Richdale, 2004, as cited in Goldman et al., 2009). It has also been suggested that parents are sensitive to even minor changes in their child's quality of sleep (Elrod & Hood, 2015). It has been suggested that parent reports could be corroborated by objective measures in addition to self-reports by children and young people with ASD (Richdale & Schreck, 2009; Goldman et al., 2009).

### ASD and ADHD

Richdale and Schreck highlight the rising reported comorbidity of ADHD (attention deficit hyperactive disorder) and ASD, with almost half of children with ASD also meeting the diagnostic criteria for ADHD (Richdale & Schreck, 2009). Whilst the DSM-IV stated that a diagnosis of ASD



precludes a comorbid diagnosis of ADHD, in practice I am lead to believe that CYP continued to receive comorbid diagnoses. This restriction has now been lifted in the current DSM-5.

Richdale and Schreck note that the impact of sleep difficulties in children with ASD may not present as daytime sleepiness but instead as over activity, which, in the extreme, may meet criteria for hyperactivity. This is said to be consistent with parent reports and improves significantly once the sleep difficulties have been addressed. The suggestions that there may be a causal relationship between ASD and reports of ADHD symptoms which resolve when sleep problems are resolved is yet to be tested, however, and thus must be considered with caution at this time.

## Conclusion

### Implications for practice

ASD is a particularly complex disorder, with the highly variable expression of ASD and high rate of comorbid psychological and physiological disorders (Vriend et al., 2011). Whilst there appears no doubt that sleep difficulties are prevalent in CYP with ASD, the aetiology of insomnia in ASD children remains to be clarified, although it is likely to be multifactorial (Hirata et al., 2015; Singh & Zimmerman, 2015). Causal relationships in research remain to be demonstrated (Hodge et al., 2014; Ming, 2009) As such, further research utilising sensitive instruments standardised on ASD population is required to address the limitations highlighted in this article. Johnson et al. (2016) call for the pressing need for a reliable, valid and relevant measure of sleep disturbances on children with ASD in order to assess and evaluate the impact of sleep treatment.

Despite the high prevalence of sleep problems in CYP with ASD, evidence for effective treatment remains sparse (Vriend et al., 2011). This subsequently impacts on the empirically supported interventions which can be recommended by professionals such as Educational Psychologists. Interventions focused on sleep education for parents of children with ASD and sleep hygiene do, however, appear key (Johnson & Shui, 2015; Corkum et al., 2014). Within this, creating awareness of the impact of the use of electronic devices on sleep is especially significant. Further consideration of the impact of anxiety on CYP with ASD's ability to sleep and interventions which can support this are also likely to be important.

Allen et al. (2016) note the critical role of non-sleep specialists including psychologists (given the outnumbered sleep specialists to behaviourally based sleep problems) in identification and treatment of sleep problems. It is noted that non-sleep specialists lack the knowledge, skills, training and resources to sufficiently address sleep problems. As highlighted in the introduction, sleep difficulties in CYP with ASD is a commonly occurring theme presented in consultations with parents and carers in my practice. As Educational Psychologists, having a robust understanding of these sleep difficulties, what may be contributing and thus what interventions may support based on current research, is fundamental to our role in supporting CYP with ASD who experience sleep difficulties and their families.

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