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Sleep in Adolescents Attending Australian Boarding Schools: A Review and Interim Recommendations

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Abstract: Boarding schools, by definition, house students in residence either on campus or close by in residential facilities - where the sleep environment is likely to differ from their home environment. For boarders, being in the boarding environment occurs alongside a convergence of psychosocial and physiological factors likely to impact adolescent sleep. This paper comprises a review of the literature on sleep and boarding students in the Australian context. We also propose recommendations aligned with the scientific evidence base that can be used to promote healthy sleep in Australian boarding school students, focusing on staff training and sleep knowledge, daily routines, sleeping arrangements, and student mental health and wellbeing. It must be noted that these recommendations should be considered interim recommendations until further research is performed in the area. Further, we suggest the development of standardised practice guidelines, to ensure that student sleep is supported appropriately within the Australian boarding context.

Introduction

Adolescence is a critical time for physical and mental development, with typical onset at approximately 10 – 12 years of age (Dahl et al., 2018; Ogden & Hagen, 2018). During this time, over 20,000 young Australians attend boarding school (Australian Boarding Schools Association, 2019). Health and wellbeing over the lifespan are significantly influenced by positive (or negative) influences in adolescence (Olsson et al., 2013). As Australian boarding schools generally accept students aged eleven and older, it is key to understand any factors that may impact mental health and wellbeing within this context. One factor known to impact adolescent mental health, wellbeing, and development is sleep (Tarokh et al., 2016). Insufficient sleep in adolescents is associated with poorer physical and mental health, academic outcomes, learning ability, memory, cognitive function, and emotion regulation (Tarokh et al., 2016). Yet, it is largely unknown how boarding school attendance impacts adolescent sleep (e.g., sleep quality, duration, and timing). Thus, this review explores the ways in which the boarding environment

may impact sleep, with a view to identifying practical strategies and tools for teachers and boarding staff to support the wellbeing, health and development of students who board.

Critically, we must note that, to date, there has been little literature published in the area of sleep in boarding school students in Australia. As such, the suggestions included within this paper are based primarily on existing literature from both similar environments (e.g., on-campus university housing, international boarding schools) and from sleep research more generally (i.e., adolescent sleep). The authorship team also have extensive experience in sleep and boarding school research and/or are embedded within the Australian boarding environment. Thus, we have termed the suggestions included within this paper specifically as *interim recommendations*, reflecting the need for future research in this emerging field. It is our hope that these will support staff and schools in the interim, but that recommendations based on a clear body of evidence in adolescent sleep in the Australian boarding context will be developed in the coming years.

Sleep in Adolescence

Sleep is essential for health and wellbeing, and plays an important role in development for children and adolescents. However, of concern is that up to 30% of adolescents report obtaining fewer than the recommended 8-10 hours of sleep each night (Short et al., 2013). Inadequate sleep in adolescence results in a wide range of negative consequences, including psychological (e.g., increased rates of mental health disorders), learning (e.g., poorer grades) and physical (e.g., increased rates of metabolic disorders) outcomes, as well as an increase in risk-taking behaviour (Shochat et al., 2014). Sleep patterns during adolescence are commonly referred to as 'the perfect storm' due to the interaction of a wide range of biopsychosocial factors, which commonly results in reduced sleep quantity and quality (Crowley et al., 2018).

From a biological perspective, there are two physiological processes that work together to regulate sleep - the circadian system and the homeostatic sleep drive. These two processes help to ensure optimal alertness during wake time, and play an important role in the timing, duration, and intensity of sleep (Borbély, 1982). During adolescence there are maturational changes that occur to these internal biological mechanisms that regulate sleep. Homeostatic sleep pressure has been found to take longer to rise during pubertal years, and there is a phase delay to the circadian timing system during adolescence - shifting the timing of sleep later (i.e., a delay to both bed and wake times). These biological changes typically result in adolescents choosing to go to bed later, as they do not feel tired until later in the evening (Crowley et al., 2018). For boarding school students, these changes take place in the context of a novel environment, alongside a number of psychosocial factors likely to also impact sleep outcomes (Crowley et al., 2018).

In addition to the biological changes that adolescents encounter, there are several psychosocial factors that become more intensified during adolescence. Psychosocial factors that can have a negative impact on sleep behaviour during adolescence include choosing to prioritise peer relationships, engagement in social media use, increased academic demands, and seeking independence over lifestyle and decisions (Crowley et al., 2018). It can also be common for adolescents at this age to worry at bedtime, particularly regarding social relationships, which can further impact sleep behaviour (Bartel et al., 2015). Further, the marked delay that is observed in adolescent sleep timing has been found to be particularly strong when sleep is not restricted by the school schedule (e.g., on weekends and school holidays). In fact, older adolescents sleep approximately one hour more at weekends compared to weekdays (Olds et al., 2010).

The Australian Boarding Context

Of the approximately 3.9 million school-aged children in Australia (Australian Bureau of Statistics, 2019), an estimated 20,354 students are enrolled in boarding schools (Australian Boarding Schools Association, 2019). Boarding (living in a dormitory on a school site or in a nearby residential site) is one way Australian adolescents who do not live in major cities access secondary education. Typically, boarding cohorts include students who live in rural, remote, and isolated areas, (including Aboriginal and Torres Strait Islander youth), as well as international students. Students may attend boarding school for various reasons, such as a lack of educational opportunities in their home locations (e.g., living in remote areas with no secondary schools), to receive higher-quality education than is available locally, to access specific extracurricular activities or school subjects, or due to family circumstances (Hodges et al., 2013; Mander, 2012, 2015). In the case of international students and students from remote or very remote areas (including indigenous students), attending boarding school can be seen as a stepping stone to attaining an Australian higher education degree (Hodges et al., 2013; Mander, 2012, 2015). Boarding schools in Australia tend to also include a high proportion of day students. This differs from boarding schools in the United States of America (USA) and the United Kingdom where boarding schools typically include >75% boarding students (Gaztambide-Fernández, 2009). Due to these contextual differences, this review focuses on the Australian boarding landscape specifically.

Sleep in a Boarding Environment

To date, little research has investigated the boarding school environment and sleep in Australia. Given this context, we must consider existing research in other countries such as Switzerland (Kalak et al., 2019), the USA (Boergers et al., 2014), and Hong Kong (Chan et al., 2018). Evidence suggests that boarding students in the USA typically obtain seven and eight hours of sleep (Owens et al., 2010). However, this is based on self-reported evidence, and was collected in the context of changing school start times (though bed times remained constant) (Owens et al., 2010). This study did not find any differences in total sleep time between boarders and day students, though the timing of sleep differed (with boarders having delayed sleep times compared with day students) (Owens et al., 2010). These findings indicate that both boarders and day students regularly obtain fewer hours of sleep than is recommended for adolescents (8 - 10 hours) (Hirshkowitz et al., 2015).

Boarding students in Hong Kong have been shown to have even shorter self-reported sleep times (6 - 7 hours) (Chan et al., 2018). Chan et al. (2018) found that longer sleep periods were associated with improved health outcomes, specifically in the context of school start time manipulation (done to determine whether later school start times improve sleep and/or attendance rates), and did not include a comparison group of day students. In a study performed on Swiss boarding and day students, self-reports indicated that boarders regularly had greater total sleep times than day students, but also reported greater sleep complaints (as measured by the insomnia severity index) (Kalak et al., 2019). In a combined sample of both boarders and day students, 18% of participants were found to regularly obtain >8 h sleep per night with standard school hours (Boergers et al., 2014). However, this study did not differentiate between boarders and day students, limiting capacity to understand the impact of boarding on sleep. Additionally,

just one study has included objectively measured sleep in boarding school students (Lo et al., 2016), though sleep restriction was experimentally induced. This study therefore cannot be used to understand typical sleep under boarding conditions.

Some students transition to boarding as young as eleven (Mander & Lester, 2017), which is typically prior to the sleep phase delays seen in adolescence. As such, many students are likely to experience changes to their sleep timing (i.e., bed and wake times) during their time in boarding school. More generally, research has emphasised the important role the family environment has on adolescent sleep. For example, parent-set bedtimes and parental monitoring have both been found to have a positive influence on adolescent sleep quantity and quality (Meijer et al., 2016; Short et al., 2011), particularly when parents take into account the changes in adolescent sleep as they get older, and adjust their expectations accordingly. This emphasises the importance of understanding the sleep environment, as well as the role that staff (who perform the role of parents) in boarding schools have in monitoring night-time behaviours.

Just one paper, to the authors' knowledge, has been published on sleep in boarding school students in Australia (Mander & Lester, 2021). This study, performed using self-report data in a sample of 168 male boarding school students in Western Australia, found that 31% of participants reported having difficulty falling asleep at least once or twice a week. Furthermore, problems such as waking early and having trouble getting back to sleep, staying up late, and arriving late to school were reported in approximately one quarter of boarders. Despite this, the overall level of sleep/wake problems was reported to be moderate.

However, none of the research performed on sleep in boarding school students has provided an objective assessment of sleep (e.g., actigraphy or other physiological measurement of sleep) in boarding school students in a naturalistic environment in the Australian context. This lack of data likely reflects the comparatively greater resources required for objective data collection, combined with the novelty of this field of research. Additionally, little insight has been provided into boarding-specific psychosocial conditions that may differentially impact boarders. It is likely that a number of psychosocial factors are associated with the sleep quality and duration of adolescents in boarding environments. These factors include:

- Staff training and sleep knowledge
- Daily routines
- Sleeping arrangements
- Mental health and wellbeing

In the absence of experimental data to draw on, we will expand on each of the psychosocial factors below, to propose strategies for boarding schools, teachers, and boarding staff to implement in order to maximise the benefits of sleep for their students.

Teacher and Boarding Staff Training and Sleep Knowledge

Teachers and staff who work in boarding schools are in the position of making key day-to-day decisions that impact students. These decisions can affect sleep in a number of ways – for example, scheduling decisions, student education and emotional support, and sleeping arrangements. Boarding staff also assume the role that parents would typically take – including implementing bedtimes, and assisting students to wake for school (Hodges et al., 2013) – which are associated with improved sleep outcomes (Short et al., 2011). However, a need has been identified in the provision of training to staff to support student wellbeing (Heyeres et al., 2017;

McCalman et al., 2020) – a key component of which is sleep. Staff who work in boarding houses can range from teaching or school staff, to university students, past boarders, or qualified youth and social workers (D’cruz, 2019). In Australia, it is now possible to also gain qualifications specific to working in boarding environments; a certificate IV in community services (student residential care or student residential care in international boarding schools), or a diploma of youth work (student residential care) ("Boarding Training Australia: Courses") (Benveniste, 2018). Inspection of the content of these courses indicates minimal content regarding student sleep. For example, the Boarding Fundamentals training package from Boarding Training Australia (2020) includes a single page devoted to student sleep, with general statements such as ‘make sleep a priority’ and ‘establish a bed and wake-time’, which may be insufficiently detailed to assist staff in promoting student sleep. Current guidelines prompt boarding schools to provide appropriate training for staff regarding the health and safety of students in their care (Australian Boarding Schools Association, 2015; Independent Schools Victoria, 2020; Royal Commission into Institutional Responses to Child Sexual Abuse, 2017). However, critically, many of these training courses do not currently provide in-depth evidence-informed understanding about sleep during adolescence, or accurate guidelines that boarding schools can follow to ensure students receive optimal sleep.

Given the limitations of training materials available to schools and staff, we propose the following interim recommendations:

- Guidelines would ideally be provided to teachers and boarding staff on how to support students to get better sleep. These guidelines could be included within current training courses (Heyeres et al., 2017). This is with a view to improving both student outcomes and their experience of boarding. This would include training on sleep hygiene and the application of this knowledge to the boarding school context. Sleep hygiene training for teachers (and students) currently provided in school-based settings (Blunden & Rigney, 2015; Gruber, 2017) typically include the following components:
 - Psychoeducation that outlines what sleep is, the sleep cycle how sleep is regulated, sleep across the lifespan.
 - Sleep in adolescents (biopsychosocial changes), impact of not getting enough sleep.
 - Measurement of sleep (to assist with self-monitoring of sleep behaviours).
 - Healthy sleep practices / sleep hygiene recommendations.
- Teaching, boarding, and relevant administrative staff could be provided with in-depth sleep education to support higher-level policy and procedural decisions (Qin & Brown, 2017). We propose including this within standardised best practice guidelines for Australian boarding schools, either within the National Boarding Standards or as separate materials.

Daily Routines

Structured routines implemented within boarding schools are likely to have a significant impact on many aspects of student life, including sleep. In most boarding environments, school days are highly scheduled, including before-school, during school, after-school activities, dinner, study time, and lights out routines. Structured activities (supervised by adults) are hypothesised in the youth development literature to be of greater developmental value to adolescents, as compared to unstructured free time (Trainor et al., 2010). In a boarding setting, supervision by

adults at all (or almost all) times is also part of duty of care requirements (Boarding Standard for Australian Schools and Residences, 2015). An example of a deidentified Australian boarding school schedule can be seen in Table 1.

Time	Activity		
	Year 5 students	Year 10 students	Year 12 students
7:00am	Wake up, breakfast, get ready for school	Wake up, breakfast, get ready for school	Wake up, breakfast, get ready for school
8:30am – 3:30pm	School	School	School
3:30pm – 5:30pm	After school activities (e.g., sport, music)	After school activities (e.g., sport, music)	After school activities (e.g., sport, music)
5:30pm	Dinner	Dinner	Dinner
6:30pm	Homework time starts	Homework time starts	Homework time starts, self-directed end time
7:30pm	Homework time finishes		
8:00pm	Technology collected (including phones)	Homework time finishes	
9:00pm	Lights out	Technology collected (including phones)	
10:00pm		Lights out	
10:30pm			Lights out

Table 1: Example daily boarding schedule for year 5, 10, and 12 students

While highly scheduled days are generally designed with the student’s best interests in mind, there may be unintended consequences for both personal outcomes and sleep. The schedule example shown in Table 1 demonstrates that there is limited time for relaxation and socialising during a typical school day. Highly scheduled days such as these leave little time for socialising with peers in an informal environment. Furthermore, students in year 5 (10-11 years) can communicate with friends and family outside of the boarding school for just half an hour (7:30pm – 8:00pm). After this time, students have no further access to technology for communication, and can engage in other quiet activities (e.g., reading). While quiet time prior to bed may be positive from a sleep hygiene perspective (i.e., minimising technology use), the lack of unstructured communication time may result in reduced positive social interactions and support for these students. This is particularly relevant given the reliance of modern adolescents on technology for positive communication and community (Manago et al., 2019). Anecdotal evidence suggests that students use time after lights out to continue their technology use, even resorting to handing in ‘dummy phones’ so that they can contact family members and friends (i.e. using a second phone that they have hidden to use after they hand in their first ‘dummy’ phone) (Hadwen, 2015). This type of post-lights out socialisation is likely to have a negative impact on sleep – both as a result of reducing sleep opportunity and increased affect/ cognitive arousal (Fuligni & Hardway, 2006). This behaviour should be investigated further, as it may indicate the negative impacts of limiting technology use in the boarding context, such as reducing access to external support networks. Furthermore, the potential differences between boarders and day students in technology access during the night has not been quantified (Hadwen, 2015).

The lack of relaxation time available during the day may result in high levels of stress and pre-bed arousal for students. There is evidence to suggest that highly scheduled time and performing more hours of homework and extra-curricular activities may result in heightened stress for adolescents (Brown et al., 2011). These feelings of stress, anxiety and arousal may similarly impact student sleep outcomes. In fact, there is evidence to suggest that a proportion of

student visits to boarding school health facilities are a result of inadequate sleep (Pavletic et al., 2016). One school notes that ‘by far, the highest percentage of clinic visits...is rooted in sleep deprivation and exhaustion’ (Pavletic et al., 2016). This information was reported based on health appointment management software.

It is important to note that our current understanding of the impact of highly scheduled days within boarding schools from a scientific perspective is limited. To date, a dearth in empirical evidence exists directly support the current scheduling style often used within Australian or international boarding schools. However, it remains a common topic of discussion at boarding conferences, workshops, and in webinars (for examples see www.boarding.org.au), with guidelines and policy positions on the subject produced by all boarding and residential providers. It is unclear nevertheless how each provider develops these and their consistency with current empirical research and knowledge regarding the developmental sleep needs of young people during adolescence.

While further research is necessary on the impact of boarding school scheduling on student sleep, we propose that schools consider the following:

- Allowing sufficient time for adequate pre-bed routines.
- Review of daily routines, including feedback from students.
- Different routines may be appropriate for different age groups, including higher levels of flexibility for older students.
- Scheduling needs to be considered to ensure that students have adequate time for socialisation with peers and family prior to bedtime. This is proposed to reduce the likelihood of students continuing socialisation post-bedtime.
- Monitor technology use in students. We acknowledge that technology is pervasive and difficult to remove completely from an adolescent’s environment. Where possible, ensuring that the form of engagement with technology isn’t arousing them too much (e.g., video games, stress-inducing social interactions) prior to bedtime should be a priority.

Sleeping Arrangements

Further to the increased structure in boarding schedules, sleeping arrangements in a boarding house are likely to differ significantly from student’s typical sleeping arrangements at home. One recent Canadian study indicated that 80.6% of children report sleeping in their own room by the age of 11, with 88.3% sleeping in their own room by age 13 (Laberge et al., 2001). This is likely to differ from shared bedrooms often seen in Australian boarding houses. Conversely, some students, (including many from remote Aboriginal and Torres Strait Islander communities) (Mander, 2012), may be used to co-sleeping arrangements and/or crowded housing situations – overcrowding has been recorded at approximately 20% of households in remote areas compared with urban housing (Attard et al., 2017; Camfferman & Blunden, 2015). Whether coming from a home with their own room or one where they have been co-sleeping, almost all boarders will face a new sleeping arrangement, with most settings requiring boarders to sleep in shared rooms (in their own single bed) (though some schools provide private rooms for year 11 and 12 students) (Mander, 2012). As evidence suggests that sleeping in a new environment results in poorer sleep, regardless of the specific sleeping arrangements (Roth et al., 2005; Tamaki et al., 2016), it is likely that boarders’ sleep will be affected by their new sleeping environment.

While we know that the boarding environment differs significantly from home environments, little sleep specific research has been performed on potentially problematic and/or protective factors that may be present in the Australian boarding context specifically. The one available study in the area notes that the vast majority of students have their primary home location in regional or remote communities, and have come to a boarding school where approximately 50 students are housed in each boarding house (Mander & Lester, 2021). This environment is therefore likely very different to students' home environment. However, little information is provided regarding the specific sleeping arrangements within this Australian boarding school. We can also draw on research that has been done on sleep in USA residential colleges, which may reflect some aspects of the Australian boarding experience. Both environments are typically student's first time living away from home, involve shared living facilities (e.g., bedrooms, bathrooms, etc.) (Qin & Brown, 2017), and a greater degree of responsibility for sleep management than at home (Qin & Brown, 2017). Environmental conditions associated with shared living environments in college students have been shown to result in poor sleep efficiency (i.e. the amount of time in bed spent asleep) (Sexton-Radek & Hartley, 2013). Shared bedrooms were found to be associated with noises such as from roommate behaviours, creaking floorboards, or other sounds that negatively impacted sleep (Sexton-Radek & Hartley, 2013). Additionally, one self-report study on sleep in residential college students indicated that over 65% of students did not believe they obtain sufficient sleep (Qin & Brown, 2017), though this may also be associated with competing social factors and domestic requirements seen in college environments. Regardless, this evidence suggests it is worth investigating the particular environmental factors that may influence the sleep of boarders.

While further research is necessary in the context of Australian boarding schools, the following interim recommendations could be used by teachers and boarding staff to support the student transition to the boarding sleep environment:

- Engage students and families about what their home sleeping arrangements are, so this can be considered when developing strategies to assist students transition to the new sleeping environment (Hadwen, 2015).
- Promote a quiet and considerate environment, ensuring that students share rooms/facilities with other students on the same sleep schedule (i.e. ensuring that students from different year levels/age groups separate bedrooms and/or bathroom facilities).
- Encourage and allow students to make reasonable changes to their sleeping environment to mimic their home sleep environment.
- Encourage students to stay in touch with their family and social support systems (outside of sleep hours) to maximise feelings of connection to home (Hadwen, 2015).

Mental Health and Wellbeing

In addition to providing education, schools are a critical developmental context for adolescents (Hamilton & Hamilton, 2009; Norrish et al., 2013). Time spent at school plays a key role in adolescent development and personal outcomes, including wellbeing and mental health (Suldo et al., 2012). However, poor mental health and wellbeing have been linked to attending boarding school in Australia (Mander & Lester, 2017; Mander et al., 2015). Negative outcomes of boarding can include homesickness (Fisher et al., 1990), emotional instability, and poor peer relationships, particularly during the transition to boarding (Martin et al., 2014). Higher rates of

anxiety and stress have also been seen in Australian boarding students over longer (~2 year) periods (i.e. post-transition) (Mander & Lester, 2017), and Australian boarders report higher rates of symptoms associated with depression than day students (Mander et al., 2015). Conversely, there is some evidence to suggest that the boarding context may have a positive impact on certain wellbeing outcomes for students, including adaptive motivation, goal setting behaviour, and life satisfaction (Martin et al., 2014). Some evidence suggests that modest growth, as measured by increases in self-reported life satisfaction, sense of meaning and purpose, as well as improved child-parent relationships, can take place for many boarding students (Martin et al., 2014, 2021). Other evidence suggests that boarding may be associated with independence and empowerment, though these findings are inconsistent (Hodges et al., 2013). However, other research suggests this is not a universal lived experience had by all (Mander & Lester, 2017).

It is well known that there is a relationship between mental health, wellbeing, and sleep (Cousins et al., 2011; Van Dyk et al., 2016). Common mental health concerns such as anxiety and depression are known to have a bi-directional relationship with sleep (Bartlett & Jackson, 2016). That is, poor sleep is linked with increased anxiety and depression, and vice versa. This bidirectional relationship has been shown in residential student environments, though in college students rather than adolescents (Peltz et al., 2017). There is evidence to suggest that within the boarding context, students may experience more symptoms associated with anxiety and stress than day students, and that both day and boarding students may experience poor mental health outcomes during adolescence (Mander & Lester, 2017). Furthermore, one study notes that boarders reporting emotional difficulties may be more likely to bully other students (Lester & Mander, 2015). These differences in mental health outcomes compared with day students are likely to result from factors specific to the boarding context. Boarding school students may experience anxiety as a result of academic / social pressures from school, combined with potentially added stressors from the boarding environment. This may include being away from family, being in an unfamiliar environment, and not having personal/cultural needs met, among others. Additionally, negative mental health and wellbeing outcomes have been seen during the transition to boarding and appear to be significantly poorer than school transitions in day students (Mander et al., 2015). This unique environment may therefore result in mental health concerns and/or poor wellbeing outcomes that negatively impact sleep.

In addition to the potential impact of mental health concerns on sleep, poor sleep has been shown to negatively impact a range of mental health and wellbeing outcomes (Tarokh et al., 2016; Tesler et al., 2013). Poor sleep, such as later bedtime and shorter sleep duration, has been linked with a higher proportion of adolescents having higher rates of anxiety, mood disturbances, substance use, suicidality, in addition to poorer general mental and physical health (Zhang et al., 2017). It is therefore critical to understand the potential effect of the boarding environment on sleep, to encourage positive mental health and wellbeing outcomes in students. At this stage, there has been no research specifically designed to understand the relationship between mental health/wellbeing and sleep in the Australian boarding school environment. Despite this, based on our understanding of the bidirectional relationship between mental health and sleep in adolescents, we recommend that mental health (anxiety and depression in particular) be an increased focus for boarding school staff and coordinators. We further propose future research on mental health and sleep in boarding school students, designed to identify potential risk and protective factors for this group of adolescents. The capacity to identify students who are at risk of either poor sleep (due to mental health concerns), or mental health concerns (due to poor

sleep) would be particularly helpful for minimising the detrimental impact of both factors. As such, we propose the following:

- Schools would ideally routinely invest in capacity building with teaching and boarding staff through regular upskilling and professional development. This should include a focus on the developmental sleep needs of young people during adolescence developed in conjunction with sleep experts and based on appropriate resources.
- Boarding policy, processes, and practices to be based on empirical evidence, particularly regarding sleep in adolescence – noting that further research is required within the Australian boarding context specifically.
- Student sleep could be included as a key competency within current residential training courses available to staff and boarding schools.
- Tailoring of the student experience to ensure that students are not overwhelmed by their day-to-day activities, including the capacity for students to play an active role in determining their daily activities.
- Appropriate within-school or external culturally relevant support services available for students to access easily.

Conclusion

Research shows that there are a number of personal, social, and structural factors that may negatively impact sleep in boarding school students. While some factors are likely to impact adolescent sleep generally (e.g., technology use, mental health concerns), educators and boarding staff must directly consider the unique sleeping environment within boarding schools and assess if appropriate sleep management strategies can be implemented. It is critical for boarding schools to implement evidence-based policies and procedures around sleep, to support and promote sleep in students. Not only would this improve the physical and mental development and health of students, but help to facilitate a smoother transition to boarding. Policy, processes, and practices need to carefully consider developmental timing and be evidence-informed from the perspective of both sleep and developmental sciences. It may therefore be necessary to develop national and/or state-based guidelines regarding sleep management that school policies can be uniformly based on.

While interim recommendations can be developed based on the current scientific evidence around adolescent sleep and boarding school environments, there is a limited body of research that has been performed in the Australian boarding context specifically. Future research should be performed directly engaging with Australian boarding school workers and students to determine the efficacy of, and any potential improvements to, current sleep management strategies. Additionally, objective measurement of sleep (e.g., actigraphy) in Australian boarders would be helpful in determining whether current sleep recommendations are being met, and potential differences between day student and boarder sleep. Further information in this area will assist teachers and boarding school staff to better assist students with healthy sleep, in addition to the positive impact on student sleep and subsequent physical health, mental health, and developmental outcomes.

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