Sleep Hygiene & Occupational Therapy: A Compendium

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SLEEP HYGIENE & OCCUPATIONAL THERAPY: A COMPENDIUM

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OVERVIEW

Sleep is an essential part of one's daily routine, contributes to overall well-being, and accounts for almost a quarter of the human lifespan. However, until 2008, there was uncertainty about whether sleep ought to be considered an occupation.

Although it was officially recognized by the American Occupational Therapy Association (AOTA) in 2008, sleep has been inadequately addressed by occupational therapists. For example, the already limited research on sleep and occupational therapy is centered on very niche populations. Further, there is no "gold-standard" approach for occupational therapists to use when addressing sleep, which results in an incredibly varied and inconsistent range of methods.

This present resource was thus developed to address this inconsistency by offering an accessible, evidence-based, and feasible guide on the current assessments and interventions on sleep (and *sleep hygiene*) that occupational therapists are well-suited to employ. The hope is that by streamlining this important information, future generations of therapists and current therapists will continue to value sleep and address it comprehensively.

"Sleep Hygiene is defined as a set of behavioral and environmental recommendations intended to promote healthy sleep, and was originally developed for use in the treatment of mild to moderate insomnia."

(Irish et al., 2015 as cited in Hauri, 1997, p.1-2)[1]

[1] Irish, L. A., Kline, C. E., Gunn, H. E., Buysse, D. J., & Hall, M. H. (2015). The role of sleep hygiene in promoting public health: A review of empirical evidence. Sleep Medicine Reviews, 22, 23–36. https://doi.org/10.1016/j.smrv.2014.10.001

HISTORY OF SLEEP AND OCCUPATIONAL THERAPY

In 1922, Adolf Meyer – a prominent psychiatrist and neurologist – described sleep as one of the 'Big Four' factors necessary for one to maintain a healthy, balanced lifestyle (Green, 2008). This marked one of the first times that sleep would enter occupational therapy discourse and for many years following Meyer, a long-standing debate arose over the legitimacy of sleep as an occupation and area of concern for occupational therapists.

As with most debates, there were two primary perspectives. On one hand, there were those in favour of ideas reflective of Kielhofner and Burke (1980) which asserted that occupations are only occupations if they are engaged in during one's 'waking time'. On the other, there was support for the idea that sleep is important for maintaining occupational engagement (Brown, 2008; O'Donoghue & McKay, 2012 as cited in Tester & Foss, 2018). Eventually, the debate swung in favour of one side and in 2008, the American Occupational Therapy Association (AOTA) definitively (and publicly) stated that sleep needs to be considered an occupation (Tester & Foss, 2018).

For the most part, members of the occupational therapy community accepted this and today, it's widely understood that sleep is an occupation. However, despite this consensus, occupational therapists have not been extensively addressing sleep. Most of the research available on sleep and occupational therapy concerns only specific populations – i.e., pediatrics or older adults with neurological impairments (Tester & Foss, 2018). As well, it appears there is no gold-standard occupational therapy approach to sleep, and practitioners have been adopting incredibly varied methods to address it in their practice (Tester & Foss, 2018).

Altogether, sleep remains largely under-represented in occupational therapy and there is still ambiguity around best practices and understanding of the true extent of ways occupational therapists can support sleep as an occupation. For this reason, more work needs to be done to develop an understanding of the role of OT in sleep - to improve quality of care, and also, to encourage the next generation of therapists.

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CURRENT CONCEPTUALIZATIONS IN OT

"Sleep" is generally agreed in Occupational Therapy (OT) discourse to be a 'restorative occupation' - restorative in the sense that it helps us rest and recuperate (Ho et al., 2018). However, despite this shared understanding, occupational therapists have paid only minimal attention to sleep, and it is still considered a newer practice area. One proposed reason for this is the lack of consensus in the OT community regarding what constitutes an appropriate framework or model to apply to sleep (Ho et al., 2018). While some models have been suggested - e.g., the PEOP model, the concept of occupational balance - the evidence supporting these approaches is relatively weak (Ho et al., 2018).

Research on sleep within occupational therapy is still in its early stages. That is, there is a limited body of research and what does exist tends to be scattered across multiple diagnoses, populations and methodologies. This lack of consistency makes generalizing findings difficult (Yoo, 2023). However, some preliminary efforts have been made to explore this area. For example, Yoo (2023) noted that OT interventions for sleep tend to be either based on sensory adjustments, or lifestyle adjustments. For their part, Ho et al. (2018) determined that sleep interventions are typically based in assistive devices, activity use, CBT and/or lifestyle intervention.

Altogether, in the current landscape, sleep is an area of practice under development. Some suggestions to accelerate the process include introducing sleep as an occupation to OT students earlier in their education, improving funding for sleep and OT research, and the creation of more professional development opportunities (McVeigh et al., 2022).

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SCIENCE OF SLEEP

The Role of Sleep in Health and Well-Being

Accounting for a quarter of the human lifespan, sleep is an essential part of daily routine and well-being. Before the 1950s, it was believed that sleep was a passive activity in which the brain and body became dormant. However, this is far from true. During sleep, both your brain and body engage in many essential biological processes that are as crucial to survival as food or water. While the full biological purpose of sleep is still in question, its importance to overall health and well-being is undeniable (National Institute of Neurological Disorders and Stroke, 2025).

In fact, sleep impacts nearly every type of tissue and system in the body, including the brain, heart, lungs, metabolism, mood, immune function, and disease resistance. As a result, ensuring you are getting enough quality sleep is essential for your overall well-being. Research has shown that the chronic lack of quality sleep can increase the risk of several health conditions, including depression, high blood pressure, cardiovascular disease, diabetes, obesity, seizures, weakened immunity, and migraines (Johns Hopkins Medicine, 2024).

The Sleep Cycle

According to the National Institute of Neurological Disorders and Stroke (2025), during sleep your brain cycles through two types of sleep: rapid eye movement (REM) sleep and non-REM sleep. The cycle starts with non-REM sleep, which consists of four stages. The first stage is the transition between being awake and falling asleep. The second stage is a period of light sleep where your heartbeat and breathing slow, muscles relax and your body temperature drops. The third and fourth stages are when you enter deep sleep, which is the most important for feeling restored and refreshed in the morning. Research has shown that deep sleep is also essential for cognitive function, such as learning and memory. These last two stages are also when it is hardest to wake up.

Following deep sleep, you enter REM sleep, typically occurring around 90 minutes after falling asleep. During REM sleep, your eyes move rapidly behind your closed eyelids, and your brain becomes almost as active as it is during wakefulness. Your heart rate, blood pressure, and breathing increase while your limbs become paralyzed and unable to move. This is also the stage when dreaming occurs.

The cycle of non-REM and REM sleep repeats itself throughout the night, typically four to five times. As the night progresses, you spend less time in deep sleep and more time in REM sleep. Additionally, the proportion of time spent in non-REM and REM sleep changes over the lifespan. Children and teenagers spend more time in deep sleep and REM sleep, whereas older adults spend less time in REM sleep and more time in light non-REM sleep. As a result, the amount of sleep you need highly depends on your own personal factors, including genetics and age. On average, most adults need 7-9 hours of sleep, teenagers and school-aged children need approximately 9.5 hours of sleep, and infants and toddlers need 16-18 hours of sleep.

Biological Mechanisms of Sleep

Johns Hopkins Medicine (2024) explains that there are two internal biological mechanisms that work together to regulate when you are awake and when you are asleep. These mechanisms are called your circadian rhythm and homeostatic sleep drive.

Circadian rhythms regulate a variety of essential functions in your body throughout the day, including temperature, metabolism, and sleep. Controlled by your internal biological clock, your circadian rhythm responds to light cues to determine when to produce and secrete the hormone melatonin. At night, melatonin is released to signal that it is time to sleep, and production is turned off when light is sensed, making it easier to wake up. This process is especially important for those mornings when you forget to set an alarm.

Homeostatic sleep drive builds up throughout the day, increasing the body's need for sleep as you stay awake. The longer you're awake, the more your sleep drive intensifies, signaling that it's time for rest. This process is managed by sleep-wake homeostasis, which tracks your need for sleep and regulates the intensity of your sleep based on various factors such as medical conditions, medications, stress, age, diet, and sleep environment.

These two systems work together to ensure that your body's need for rest is met, syncing to make you feel sleepy at night and awake during the day. However, disruptions to either mechanism can lead to difficulty falling asleep or staying awake when needed. A common example of this is jet lag, where your sleep drive may be high, but your circadian rhythm is disrupted, making it difficult to sleep and thus manage daily activities.

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UNDERLYING SLEEP THEORIES

Understanding the complexities of sleep and its importance in clinical practice goes beyond learning the basic physiology. Taking a closer look at the theories explaining how various factors influence sleep patterns can further support exploring and treating sleep disorders in clinical practice. Three key models commonly used to explore sleep disorders are the stimulus control model, the 3P model, and the sensory processing model which will be discussed in further detail.

The Stimulus Control Model

The stimulus control model, originally developed by Richard Bootzin, focuses on the relationship between environmental cues and the ability to sleep. Based on principles of conditioning, the model suggests that good stimulus control occurs when a single stimulus is paired with a single behaviour, leading to a predictable response. However, stimulus dysfunction occurs when a single stimulus is paired with multiple behaviours, reducing the likelihood of a consistent response (Jansson-Fröjmark et al., 2023). For example, creating a bedtime routine typically promotes sleep. However, if the routine is followed by several activities, such as reading in bed, working in the bedroom, or engaging in other stimulating behaviours, sleep becomes less likely. It is hypothesized that when stimulus dysfunction occurs, there is an increased possibility of developing sleep disorders (Perlis et al., 2011). Therefore, establishing a consistent sleep routine and calming environment can increase the likelihood of quality sleep.

The 3P Model

The 3P model, originally developed by Spielman and colleagues, examines how predisposing, precipitating, and perpetuating factors contribute to sleep and the development of sleep disorders. The first two factors (predisposing and precipitating) conceptualize how stress, combined with other factors, can trigger or worsen a sleep disorder. The third factor (perpetuating) conceptualizes how certain behaviours can cause a disorder to become chronic (Perlis et al., 2011).

Predisposing factors include any biopsychosocial components that affect sleep, while precipitating factors refer to acute events, typically stressful, that trigger a sleep disorder. Perpetuating factors are the behavioural responses a person has to their disorder in an attempt to cope with sleeplessness. However, in reality, these responses typically worsen insomnia symptoms rather than relieve them. For example, people often try to stay in bed longer or take naps during the day to make up for lost sleep. Based on sleep drive and circadian rhythms, it is known that this behaviour disrupts sleep regulation, rather than improves it (Buysse et al., 2011). By taking a holistic approach, this model is very useful for exploring the many factors impacting sleep for clients. It can also help clinicians target specific areas for intervention, supporting clients and reducing the effects of sleep disorder.

The Sensory Processing Model

Sensory processing refers to the way the nervous system receives, organizes, and responds to sensory input from the environment. Dunn's model of sensory processing (2007) identifies four distinct patterns: registration, seeking, sensitivity, and avoidance. Each pattern reflects a person's neurological threshold and behavioural response to sensory stimuli.

Research has shown a significant relationship between sensory processing differences and sleep disturbances in children. For instance, a cross-sectional study involving 231 children aged 7–12 found that all four sensory patterns were moderately associated with poorer sleep habits (Rajaei et al., 2020). Specifically, sensory sensitivity and avoidance—both characterized by low thresholds—were linked to increased bedtime resistance, sleep anxiety, night wakings, and parasomnias. Meanwhile, poor registration and high sensory seeking were associated with difficulties maintaining sleep and increased daytime sleepiness.

These findings suggest that sensory processing challenges, whether related to hypersensitivity or hyposensitivity, may disrupt sleep routines and quality. As such, recognizing individual sensory profiles and adjusting environmental and bedtime routines accordingly may be an important consideration in promoting better sleep, particularly in pediatric populations.

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METHODS

SEARCH METHOD - ASSESSMENTS

A literature search was conducted using the following databases: PubMed, MEDLINE, AgeLine, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, ClinicalKey, and BMJ Best Practice. These databases were selected due to their comprehensive coverage of medical, behavioural, health, and social science literature, including occupational therapy research.

The search terms used included combinations of “occupational therapy” AND “sleep,” OR “sleep hygiene,” AND “assessment.” As the aim was to identify literature relevant across the lifespan, no age-specific population filters were applied.

Database yields varied: MEDLINE returned 100 articles, PsycINFO 20, CINAHL 16, ClinicalKey 1, and BMJ Best Practice 1. Inclusion criteria were: studies in English, involving any psychiatric condition, any diagnosed sleep disorder, and where the primary focus was on sleep-specific assessment tools. Articles were excluded if sleep was only a minor component (e.g., a subsection of a broader assessment). Refer to Appendix A for an overview of the search strategy.

Title and abstract screening were completed in pairs, with conflicts resolved through discussion. Full-text review was conducted individually. From the selected literature, a list of common sleep assessments was compiled for further evaluation of feasibility and psychometric properties. All results were organized by age group (i.e., general/any age, pediatric, adult, and older adult) to support age-appropriate application within this compendium.

SEARCH METHOD - INTERVENTIONS

A literature search was carried out in the following databases: PubMed, AGELINE, Cumulative Index in Nursing and Allied Health Literature (CINAHL), PsycInfo, ClinicalKey and BMJ Best Practice Guidelines. These databases were selected for their breadth of coverage across medical, behavioural, social science and health (including occupational therapy), literature. The keywords used were “occupational therap*” *and* “sleep hygiene” *or* “sleep education” *or* “sleep habit*”. Given our interest in looking for interventions across the lifespan, no specific population was prioritized.

The database search yielded the following results: PubMed returned 127 articles, PsycINfo 50, CINAHL 105, Ageline 69, ClinicalKey 1 and BMJ Best Practice 2. Inclusion criteria for this search included: any psychiatric condition, any diagnosed sleep disorder, all age groups and studies published in English. Literature was excluded if the described intervention was not within the scope of sleep hygiene (e.g. Cognitive Behavioural Therapy for Insomnia [CBT-I]) or if the intervention was a program that did not have sufficient or specific information on the used sleep hygiene strategies. Refer to Appendix B for an overview of the search strategy.

Screening of the articles was done in pairs, with conflicts resolved through discussion. Full-text review was completed individually and a total of 22 studies were included. Several critical appraisal tools were used to assess the studies: The Appraisal of Guidelines for Research & Evaluation II (AGREE II), JBI Systematic Review Tools and Preferred Reporting Items for Systematic Reviews and Meta-Analysis with an extension for Scoping Reviews (PRISMA-ScR). Refer to Appendix C for the PRISMA flow diagram.

Once the initial literature search for interventions was completed, a separate grey literature search was conducted. The idea here was to ensure that as much coverage of the topic as possible was done and that the resulting compendium would be holistic. The grey literature search involved the use of Google Scholar and the Google Search engines. The key terms were: “occupational therapy sleep interventions”, “sleep interventions + occupational therapy”, “sleep interventions table + efficacy”, “occupational therapy + sleep ppt”, “sleep + emotional interventions”, “sleep + interventions + blog” and “avoid using phone before sleep.” In the end, six studies were extracted. Any studies that described sleep hygiene strategies already found during the initial database search were not included. Given the nature of grey literature, no specific appraisal tools were used.

ASSESSMENTS

The following tables summarize the feasibility and psychometric properties of several commonly used sleep assessments relevant to occupational therapy practice.

The assessments presented are organized into four categories—general, pediatric, adult, and older adult—based on their intended populations. Most tools rely on self-report or caregiver/parent-report, which may present challenges for individuals with cognitive impairments or limited self-awareness.

Each tool varies in the sleep-related domains it evaluates—from sleep onset and duration to environmental factors and daytime functioning. While none of these assessments are comprehensive on their own, all demonstrate satisfactory psychometric properties and are generally quick to administer and easy to access online, making them feasible for use in diverse occupational therapy settings.

General Sleep Assessments: These tools are designed for use across a wide age range and often function as screening measures for sleep hygiene or general sleep disturbance. They evaluate domains such as sleep quality, quantity, and daytime function, and can be applied across multiple populations.

Pediatric Sleep Assessments: Intended for children and adolescents, these tools target age-specific sleep concerns such as bedtime resistance, night wakings, and environmental disruptions. They rely on both caregiver and self-report and are validated for use with typically developing children as well as those with neurodevelopmental conditions.

Adult Sleep Assessments: These tools address sleep-related concerns commonly seen in adult populations, including insomnia, fatigue, and poor sleep hygiene. Assessments in this category are typically brief, accessible, and have strong psychometric backing, making them suitable for use in clinical, community, and rehabilitation settings.

Older Adult Sleep Assessments: Sleep disturbances are particularly prevalent in older adults, often due to age-related physiological changes, comorbidities, and medication use. Assessment for this population may focus on insomnia symptoms, sleep quality, and daytime sleepiness.

Please see Appendix D for an overview of the common assessments used by OTs to screen for sleep function.

ASSESSMENTS - GENERAL POPULATION

The following table summarizes the feasibility and psychometric properties of four commonly used sleep hygiene assessments appropriate for any population.

Tools Discussed:

- Insomnia Severity Index (ISI)
- Pittsburgh Sleep Quality Index (PSQI)
- Sleep Diary/Sleep Activity Record
- Sleep Hygiene Index

—

Assessment	Comments on Feasibility	Psychometric Properties
Insomnia Severity Index (ISI) *(Morin et al., 2011)*	7 item self-report questionnaire that assesses the nature, severity and impact of insomnia. The usual recall period for this assessment is "last month" and the dimensions evaluated include: severity of sleep onset, sleep maintenance, early morning awakening problems, sleep dissatisfaction, interference of sleep difficulties with daytime functioning, noticeability of sleep problems by others and distress caused by sleep difficulties. The final score indicates the presence and severity of insomnia. ● *This assessment is specific to Insomnia, and may not be relevant to other sleep disorders* ● *The dimension related to "daytime functioning" may be particularly relevant to occupational therapists (OTs)* ● *Relatively quick to administer (~5 minutes)* ● *Accessible, general language* ● *Requires one to have memory and awareness of their own sleep patterns over a period of one month* ● *Available online via: UPenn Website*	● Excellent internal consistency (Cronbach's α of 0.90 and 0.91 w/ two samples) ● Item response analysis revealed adequate discriminatory capacity for 5 of the 7 items ● Convergent validity (as denoted by significant correlations between the total ISI score and the measures of fatigue, QoL, anxiety and depression)
Pittsburgh Sleep Quality Index (PSQI)	Assesses sleep quality over the course of one month. Consists of 19 self-rated questions and 5 questions rated by bed	● Acceptable measures of internal homogeneity

(Buysse et al., 1989)	partner/roommate (though their responses do not factor into scoring). Items assessed are contained to one of the following: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication and daytime dysfunction. A higher score indicates more acute sleep disturbances. ● *Validated in many different populations* ● *Considers "daytime dysfunction", which may be relevant to OTs* ● *5-10 minute completion time* ● *Accessible, general language* ● *Not necessarily tied to one specific diagnosis* ● *Does require ability to remember and be aware of one's' own sleeping habits across a one month period* ● *Requires supplemental information from a bed partner/roommate* ● *Available online (UPenn Website)*	(Cronbach's α of 0.83), consistency (test-retest reliability = .85) and validity ● Global PSQI score >5 yielded a diagnostic sensitivity of 89.6% and specificity of 86.5% (kappa = 0.75, p < 0.001) in distinguishing good and poor sleepers ● Validated in a variety of populations, including: patients with major depression disorder, a variety of sleep disorders, cancer and fibromyalgia
Sleep Diary/Sleep Activity Record *Rogers et al., (1993)* *Hageman (n.d.)*	A record of someone's sleep habits over a period of at least 5 nights. Can include any number of information points - though slight differences exist for adults vs. children. Generally, it is best to include a record of: time of attempting to sleep, time of waking up, perceived sleep quality, number of night awakenings and napping. ● *Minimum supervision required to complete* ● *Can be done with children (e.g., via parent)* ● *Not expensive and widely accessible* ● *Relatively straightforward for people to understand* ● *Potential exists for folks to 'overestimate' their sleep habits, or experience recall bias* ● *Can be time consuming to both interpret and complete* ● *Susceptible to cognitive factors (e.g., level of motivation, memory, ability to estimate time, etc.)*	● No one article exploring efficacy, as not a standardized assessment ● Rogers et al., (1993) showed that sleep diaries offer generally high specificity and sensitivity ● Majority of psychometric data stems from **"Consensus Sleep Diary"** research

Sleep Hygiene Index *Mastin et al., 2006*	13-item self-administered assessment intended to evaluate the presence of behaviors thought to compromise sleep hygiene. Asks how frequently a behaviour is engaged in. Higher scores indicate a more maladaptive sleep hygiene status. ● *Relatively short* ● *Easy to administer* ● *Relies on one's' ability to accurately self-report on their own sleep behaviors* ● *Not tied to any one sleep disorder* ● *Can help OTs determine not only quality of sleep, but behaviors contributing to any challenges in quality* ● *Available online*	● Good test-retest reliability (r(139) = 0.71, p <0.01) ● Positively correlated (p < 0.0) with all associated features of inadequate sleep hygiene ● Comparable psychometric properties to other sleep scales (e.g., Pittsburgh Sleep Quality Index)

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ASSESSMENTS - PEDIATRICS

The following table summarizes the feasibility and psychometric properties of two commonly used pediatric sleep assessments appropriate for children and adolescents by occupational therapists.

Tools Discussed:

- Children's Sleep Habits Questionnaire (CHSQ)
- Adolescent Sleep Hygiene Scale (ASHS)

Assessment	Comments on Feasibility	Psychometric Properties
Children's Sleep Habits Questionnaire (CHSQ) (Owens et al., 2000)	A 45-item questionnaire completed by parents to examine the frequency of behaviours commonly associated with sleep difficulties in school-aged children (4-10 years old). It provides a retrospective measure of sleep over the past week at time of assessment. Questions fall within eight subscales: bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, night wakings, parasomnia, sleep disordered breathing and daytime sleepiness. Scores exceeding 41 suggest the presence of a pediatric sleep disorder. ● *Quick to administer (~10 minutes)* ● *Validated for children with Autism Spectrum Disorder and Attention Deficit/Hyperactivity Disorder* ● *There is an infant version available for children aged between 2 weeks - 12 months* ● *Should be used as a screening tool*	Evaluation of the psychometric properties by Owens et al. (2000) found the CHSQ to have acceptable psychometric properties. ● Adequate internal consistency (Community sample p= 0.68, clinical sample p=0.78) ● Acceptable test-retest reliability ● Good concurrent validity ● Sensitivity of 0.80 ● Specificity of 0.72
Adolescent Sleep Hygiene Scale (ASHS) (Storfer-Isser et al., 2013)	A 32-item self-report questionnaire designed to assess sleep hygiene domains that are thought to influence sleep quality and quantity of youth aged ≥ 12 years. The domains explore factors related to physiology, cognition, emotion, sleep	Evaluation of the psychometric properties by Storfer-Isser et al. (2013) found the ASHS to have satisfactory psychometric properties. ● Good concurrent

	environment, sleep stability, substance use, daytime sleep and bedtime routine. Higher scores denote poorer sleep hygiene. • *Quick to administer (5-10 minutes)* • *Accessible, uses general language* • *Easily available online*	validity. • Good convergent validity. • Strong internal consistency. (Chronbach's α = 0.84)

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ASSESSMENTS - ADULTS

The following table summarizes the feasibility and psychometric properties of two commonly used sleep assessments specific for adults (18+) by occupational therapists.

<u>*Tools Discussed:*</u>

- Athens Insomnia Scale (AIS)
- The Epworth Sleepiness Scale (ESS)

Assessment	Comments on Feasibility	Psychometric Properties
Athens Insomnia Scale (AIS) (Shahid et al., 2012) (Soldtos et al., 2000)	A self-report eight-item questionnaire that evaluates the impact of insomnia symptoms on several domains including sleep onset, night and early-morning waking, sleep time, quality, frequency, duration and distress. It can be used to assess sleep-related problems and the impact of these on daily function. A formal insomnia diagnosis is not required. ● *Quick to administer (~ 3-5 minutes)* ● *Valid for adults aged 18-79 years old* ● *Easily available online* ● *Further validation needed in chronic pain patients.*	Soldtos et al. (2000) found the AIS to have strong psychometric properties. ● Strong internal consistency (Chronbach's α = 0.89) ● Satisfactory test-retest reliability ● Strong external validity
The Epworth Sleepiness Scale (ESS) (Goncalves et al., 2023)	A self-report questionnaire with 8 questions that assess daytime sleepiness. The higher the score, the higher the person's average sleep propensity or level of daytime sleepiness. A score of 10 or higher implies potentially excessive daytime sleepiness. ● *Quick and easy to administer* ● *Depending on the setting, a license may be required to administer this* ● *Not suitable for those with serious cognitive impairments.*	Goncalves et al. (2023) found the ESS to have strong psychometric properties. ● Strong internal consistency (Chronbach's α = 0.86) ● Good test-retest reliability ● Strong external validity

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ASSESSMENTS - OLDER ADULTS

The following table summarizes the feasibility and psychometric properties of a commonly used sleep assessment specific for older adults (65+) by occupational therapists.

Tool Discussed:

- Geriatric Sleep Questionnaire (GSQ-6)

Assessment	Comments on Feasibility	Psychometric Properties
Geriatric Sleep Questionnaire (GSQ-6) (Espirito-Santo et al., 2021)	A self-report questionnaire with 7 questions that assess subjective sleep quality using a 5-point Likert-scale. The domains explore sleep latency, difficulty in falling asleep, number of night awakenings, spontaneously waking before the desired time, if waking up earlier is a problem, sleep quality and depth of sleep. Higher scores denote poorer subjective sleep. • *Quick to administer (~5-10 minutes).* • *Requires one to understand sleep pattern terminology.* • *May not be suitable to those with cognitive decline and/or impairment.*	Espirito-Santo et al., (2021) found the GSQ-6 to have good psychometric properties. • Good reliability (Chronbach's α = 0.79) • Adequate convergent and divergent validity ($p < 0.01$) • ROC analysis → sensitivity of 80.0% w/ specificity of 66.7% in identifying sleep problems

Reference

Espirito-Santo, H., Dias-Azedo, D., Lemos, L., Grasina, A., Andrade, D., Henriques, S., Paraíso, L., & Daniel, F. (2021). Validation of the geriatric sleep questionnaire. *Sleep Medicine*, *88*, 162–168. https://doi.org/10.1016/j.sleep.2021.10.022

INTERVENTIONS

The following tables provide the overview and description of the feasibility of several common sleep interventions relevant to occupational therapy practice.

The assessments are organized into 8 different categories, informed by the Adolescent Sleep Hygiene Scale (Storfer-Isser et al., 2013)[2]. We chose this categorization for the interventions because the scale conceptualizes sleep more in terms of influencing factors (e.g., physiology) rather than outcomes (e.g., sleep duration). Grouping interventions this way allows us to present our recommendations in an accessible manner which can be appreciated by occupational therapists seeking interventions for specific populations.

Physiology category: focused on addressing the physical/physiological factors that affect one's sleep. These interventions generally involve manipulation of one's body in some way (e.g., exercise, sleep positioning) or engaging the senses (e.g., touch-based interventions).

Cognition category: focused on addressing the cognitive factors affecting one's sleep. The interventions here may be grounded in ideas that relate to one's own mind or state of consciousness (read: *cognition*) and/or acquiring information (e.g., education).

Emotion category: focused on addressing the emotional factors affecting one's sleep. Only one intervention was found to be appropriate for this category.

Sleep Environment category: focused on addressing the ways in which one's sleep environment may be impacting their sleep. Interventions outlined here may involve physical manipulation to one's environment (e.g. lighting, temperature) or recommendations of new ways to interact with one's environment (e.g., electronic use before bed, mattresses).

Sleep Stability category: focused on improving one's ability to sustain stable sleep. Interventions overviewed here are incredibly varied - ranging from occupation to grading.

Substance Use category: focused on addressing the impact of substance use on one's sleep. A trio of substances are explored: caffeine, nicotine and alcohol.

Daytime Sleep category: focused on addressing the impact of sleeping during the day on one's overall sleep hygiene. Interventions here discuss time/length or frequency of daytime sleep.

Bedtime Routine category: focused on making changes to one's bedtime routine through interventions encouraging thoughtful planning of bedtime routines.

Please see Appendix E for an overview of the common sleep hygiene intervention strategies used by OTs.

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INTERVENTIONS - PHYSIOLOGY

The following table provides the overview and description of the feasibility of 6 common sleep hygiene interventions. The focus of these interventions is physiology.

<u>*Interventions Discussed:*</u>

- Exercise
- Sleep Position Education & Prescription
- Touch-Based Interventions
- Stimulus Control Therapy
- Sensory Diet
- Increasing Daylight Exposure

Strategy	Description	Age	Evidence/Theory
Exercise	Exercise Training → involving sports, physical activity, aerobics, anaerobic exercises, yoga, resistance bands, walking, etc. • In Shang et al., (2019), two of the included studies suggested exercise be done for around 30 minutes, up to 3 times a week. • In Yoo et al., (2023), exercise dosage was not described, but the activities were wide ranging - covering muscle strength, flexibility, endurance and cardiovascular fitness.	Any	• There is some evidence in support of this intervention, however, future high-quality studies are needed (Riemann et al., 2023) • Yoga specifically was shown to be effective in increasing sleep among employees participating in a workplace health promotion program (Robbins et al., 2019) • Physical activity is a safe and beneficial means to improve sleep among nursing home residents (Shang et al., 2019) • Yoga has beneficial effects on sleep in nursing home residents (Shang et al., 2019) • Combined OT/PT program for adults with MSK pain and PD led to reduced insomnia prevalence and increased occupational performance (Yoo et al., 2023)
Sleep Position Education & Prescription	Education on the importance of sleep positioning, either with or without the use of a positioning device. • E.g. Conformational	Any	The use of a positioning device decreased time in awake alert, active awake and crying states to improve sleep efficiency in early childhood (Clark et al., 2020)

	positioner for infants The use of night-time positioning equipment was found to support clients in their ability to lie straight, reduce risk of pressure injuries and reduce spasm to promote better sleep quality.		Asymmetrical body alignment can have several detrimental impacts to sleep. Therefore, if suitable, night-time position equipment should be assessed and considered when addressing overall client posture during device prescription (Innocente, 2014).
Touch Based Interventions	Providing 15-20 minutes of massage, twice daily with one session before sleep. Skin-to-skin contact with child	Peds	Providing massage daily decreased crying and increased sleep duration (Clark et al., 2020) Massage was found to be more effective than rocking infants who were colic. (Gronski et al., 2020)
Stimulus Control Therapy	Achieved by reducing activities which interfere with sleep. Needs training to be done. Involves specific interventions such as: ● Going to bed only when you feel tired ● Use the bedroom only for sleep and intimate relations ● Leave the room if you do not fall asleep within 15-30 minutes ● Get up at the same time every morning, regardless of how much sleep was had the night prior	Older Adults	Found to be promising in the treatment of older adults with insomnia. However, it can be difficult to implement due to its intensity, need for sustained motivation on the part of the client and other possible compliance issues (Petit et al., 2003)
Sensory Diet	● A sensory diet is the use of sensory 'tools' from various sensory domains (e.g., tactile, proprioceptive, visual, auditory, tase/olfactory and movement) within a child's day in order to have their sensory needs met ● Goal here is to assist	Peds	Addressing sensory needs can lead to better sleep; overall effective (Zakorchemny et al., 2019)

	the child in organizing their responses to sensory stimuli (read: an adaptive response) while participating in occupations ● Transition times are best for these sensory tools ○ E.g., temperature or texture of breakfast, movement breaks; weighted blankets ● Impact on sleep may be smoother transitions to bed, calmer evening states and more morning wakefulness		
Increasing Daylight Exposure	Sunlight is one of the key components and drivers of circadian rhythms, therefore exposure to light during the day supports the functioning of your circadian rhythm	Any	Supported by **Circadian Rhythm Theory.**

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INTERVENTIONS - COGNITION

The following table provides the overview and description of the feasibility of 3 common sleep hygiene interventions. The focus of these interventions is cognition.

Interventions Discussed:

- Mindfulness Based Interventions
- Sleep Education Program

Strategy	Description	Age	Evidence/Theory
Mindfulness Based Interventions	Mindfulness-Based Stress Reduction (MBSR); an 8-week program that helps people learn mindfulness and manage stress via activities such as meditation, body scans (Alberta Health Sciences, 2024) MBSR in this case teaches people how to use their internal mind and bodily strengths to do positive things for themselves and their well-being. It involves integrating oriental Buddhist practices, such as sitting quietly, meditation, yoga, etc. (Chen et al., 2020)	Adults 18+	Positive effects so far; more research is needed (Riemann et al., 2023)
Sleep Education Program	A program that outlines key facts/strategies for sleep. Considered: ● “Sleep Kit” that contained an eye mask and ear plugs, as well as an accompanying information sheet around recommended daily routine practices and nighttime	School Aged Children	Daytime sleepless decreased, particularly among the upper grades (Yoo et al., 2023)

	modifications (Sheth, 2016 as cited in Yoo et al., 2023) • "Miniku" - 2 lectures per year around a variety of topics, such as why we sleep, how to sleep well, conditions of a good sleep, biological rhythms, creating a good environment for sleep, etc. Topics vary per grade level. (Kursaswa et al., 2020 as cited in Yoo et al., 2023)		

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INTERVENTIONS - EMOTION

The following table provides an overview and description of the feasibility of 1 common sleep hygiene intervention. The focus of this intervention is emotion.

Interventions Discussed:

- Stress management

Strategy	Description	Age	Evidence/Theory
Stress Manage-ment	Engage in meaningful stress management strategies to reduce the negative impact of this on sleep. For example, engaging in relaxation and mindfulness-based activities may reduce stress.	Any	Psychosocial stress has been associated with increased arousal around bedtime, making it difficult to fall and maintain sleep (Irish et al., 2015).

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INTERVENTIONS - SLEEP ENVIRONMENT

The following table provides an overview and description of the feasibility of 11 common sleep hygiene interventions. The focus of these interventions is the sleep environment.

Interventions Discussed:

- Light therapy
- Listening to music
- Modifications in the classroom (Grad)
- Compression T-Shirts
- Weighted blankets
- Air quality and odors
- Lighting considerations
- Noise and sounds
- Temperature
- Mattress/Surface Considerations
- Managing electronics before bed

Strategy	Description	Age	Evidence/Theory
Light Therapy	Exposing the body to specific wavelengths of light (often artificial) to treat various conditions (Cleveland Clinic, n.d.) Generally, light therapy should follow the 'phrase response curve' of light. That is, early exposure to light in the AM shifts the biological clock to an earlier point in time, whereas light in the PM/Evening shifts it to a later time. Therefore, light therapy in the AM should occur as early as possible. Range in time for treatment could be anywhere from 0.5h to 4h (Van Maanen et al., 2016)	Any	Small positive effects on sleep; worthy of more investigation (Riemann et al., 2023) Limited evidence that light therapy improves sleep in nursing home residents (Shang et al., 2019)
Listening to Music	Putting on music prior to sleep.	Any	Recent meta-analyses indicate possible positive effect; though these analyses are not entirely

			methodologically sound (Riemann et al., 2023)
Modificati-ons in the classroom (graduate level)	Educators and administrators should explore curriculum strategies, environmental adjustments, and modifications to academic practices to positively impact students' sleep habits. Physical environment: lighting, temperature, etc. (AOTA, 2010, 2017 as cited in Landa-Gonzalez & Chan, 2023) Academics: balance the demands of course activities; coping skills training; thoughtful course scheduling/load; further education around sleep in curriculum (Soja et al., 2016; Bhujade, 2017; Kumar & Bhukar, 2013; Ohl et al., 2019; Stewart & Stanford, 2021 as cited in Landa-Gonzalez & Chan, 2023)	Adults 18+; graduate students	A literature review examining the sleep patterns of graduate healthcare students found that many experience poor sleep, which may be partly due to the inherently stressful nature of graduate studies. Although not directly tested, the authors suggested that interventions targeting the academic and learning environment could potentially improve students' sleep hygiene (Landa-Gonzalez & Chen, 2023).
Compress ion T-Shirts	Compression garments (e.g., “SmartKnitKids Compresso-T) worn in a variety of phases, ranging in time worn (e.g., Phase 2 - the garment was removed for 2 weeks)	Pediatrics; Autism	Efficacy of compression garments is highly individual and based largely on the child’s sensory profile (i.e.: personal preferences and age). For example, a child with hyposensitive sensory patterns may benefit from the garment more than a child with a different pattern. As well, older children may benefit more than their younger counterparts. More research should be done. (Mische Lawson et al., 2022)
Weighted blankets	Overnight use of a weighted blanket can be recommended for adults. Overnight use of a weighted blanket for children should be trialed based on both child and caregiver preferences. Due to	Any	A scoping review by Dawson et al. (2024) found that weighted blankets improved sleep quality, duration and latency. Secondary outcomes included reduced medication use, improved mood and improved daily functioning in adults. In children, the evidence

	safety concerns, supervision when in use should be considered.		for effectiveness was less significant. The overall level of recommendation for improving sleep was rated as level B for adults and level C for children.
Air quality and odors	Keep a clean bedroom space and optimize air quality through the use of air purifiers. Wash bedding frequently in hot water, use protective covers on the pillow and mattress. Trying calming light scents, such as lavender, may induce feelings of calmness and relaxation to cultivate a positive space for sleep.	Any	The bedroom can be easily polluted, especially considering the high level of humidity and temperature under the sheets. Good air quality and adequate ventilation are important to ensure quality sleep (Desjardin et al., 2020). Research has shown that smell can affect how long it takes to fall asleep, sleep quality and quantity. Distinct scents may promote better sleep and help wake up in the morning (Suni & Dimitriu., 2023).
Lighting Considera tions	Dim the light in the evening and avoid all sources of blue light (TVs, phones, computer screens) Use black-out curtains to reduce light. Additionally, sleep with a blindfold.	Any	Based on circadian rhythm, light is the most powerful synchronizer. Therefore, exposure to bright light before bedtime can delay secretion of melatonin by about 90 minutes, making it more difficult to fall asleep (Desjardin et al., 2020).
Noise and sounds	Use earplugs Turn on a machine that emits a constant noise (e.g. fan) to mask intermittent noises	Any	Noises and sounds can still be processed by the brain during sleep, disrupting sleep cycles by lengthening the amount of time spent in light sleep stages. This reduces the amount of time spent in deep sleep, the more restorative stages. (Desjardin et al., 2020).
Temperat-ure	Choose sleepwear and bedding that can be easily changed throughout the night Use a fan or air conditioner A sleep environment between	Any Older Adults	During sleep, internal body temperature, skin temperature, ambient temperature, ventilation, humidity, sleepwear and bedding all interact to create a microclimate under the sheets. Moderate exposure to heat or

	17°C and 20°C and a humidity rate between 40-60% is ideal. Generally, cooler is better than hot but tailor your bedroom temperature to suit your own preferences.		cold during the night may have a negative impact on sleep quality, where sleep is more often disturbed by heat rather than cold. (Desjardin et al., 2020).
Mattress/ Surface Considera tions	● Bigger beds are generally better (e.g., more room to adjust posture) ● Generally, the lower the bed, the easier to get on, though, this can result in difficulty getting up ● The best mattresses conform to the spine's natural curves and keep one's body in its most "neutral postures" ● Mattresses which are too firm may create pressure points and take one away from those "neutral postures" ● Too soft can lead to uneven support and, also, deviations from "neutral postures" ● Any pillows used to should support the body's natural curves but also be firm yet comfortable; consider also what kind of sleeper you are (e.g., side, back, belly) ● Ensure that your bedding matches your needs and preferences	Adults 18+	Having the right bed and pillow can help prevent problems with sleep from developing (as is the general idea *ergonomics*) (Fuchs et al., 2023)
Managing Electronic s Before Bed	● Set a technology curfew - have a rule to turn off all electronics at least one hour before bed, to help your body prepare for sleep. During this hour, engage in non-screen activities such as reading, breathing, a bath, etc. The goal of this hour is to	Adults 18+	Use of electronics before bed has been linked to issues in sleep quality - e.g., the blue light from scenes interferes with melatonin production, which, in turn, delays the onset of sleep (Sleep Foundation, n.d.)

	give yourself a break, not add a task to your to-do list. ● Manage your phone notifications - i.e., set your phone to “Do Not Disturb” which can help one avoid distractions, but also get the notifications they truly need ● Schedule message times - e.g., have specific times during the day for when messages are checked as this can help train you to not look at your phone during bedtime hours. ● Remove electronics from the bedroom - basically, remove temptation; for alarms, consider a traditional clock so you don’t need to rely on your phone ● Adjust brightness - if all else fails, and you do need to use your tech, use “night mode” for the screen		

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INTERVENTIONS - SLEEP STABILITY

The following table provides an overview and description of the feasibility of 8 common sleep hygiene interventions. The focus of this intervention is sleep stability.

Interventions Discussed:

- Parent education (on behavioural sleep problems)
- Lifestyle Redesign Intervention (LR)
- Occupational Balance Interventions
- Consistent sleep and wake-time
- Only use the bed for sleeping
- Sleep only when tired
- Prioritize sleep
- Gradual adjustment to sleep times

Strategy	Description	Age	Evidence/Theory
Parent education on behavioural sleep problems	Providing education to parents on: • Types of infant cries • Soothing • Controlled comforting • Anticipatory guidance • Bedtime fading • Gradual extinction	Infants and toddlers	Providing training on causes and responses to infant cries decreased infant crying and increased sleep (Clark et al., 2020) Overall, outcomes led to improved sleep duration, latency and frequency for both the children and parents (Gronski et al., 2020)
Lifestyle Redesign (LR) Intervention	A broad-based, flexible occupation-based intervention that consisted of weekly small-group sessions led by a registered OT. Each session was around ~2 hours in length, and incorporated elements of didactic presentation, peer exchange, activity participation and personal reflection. Content regarded healthy lifestyle behaviours: • Impact of activity on health	Adults 18+; Older Adults	LR group participants gained nighttime sleep minutes, whereas the no-treatment control group participants did not. These findings, according to the authors, were consistent with research previously done around daytime sleep restriction and engagement in daytime activity - e.g., Alessi et al., 2005 and Newman et al., 2000 (Leland et al., 2016)

	• Time Use and energy conservation • Changing habits and routines (e.g., temporal rhymes) • Goal setting (w/ a focus on daily activity) • …etc. (Clark et al., 2012)		
Occupational Balance Interventions	Sleep and occupational balance are associated. Aspects such as the number of occupations, time to perform them, and time spent recovering/sleeping can be associated with good sleep. Poor balance of occupations can be associated with difficulties with awakening and fatigue. • Rest, recovery and sleep between periods of engagement in occupations can reduce overload, stress and help with the creation of a healthy, balanced lifestyle • Balance between ‘enough time for obligatory occupations’ and ‘satisfaction with # of occupations’ should be created and is generally associated with different aspects of good sleep quality Specific ways to facilitate good occupational balance include: time-geographical diaries; the Occupational Balance Questionnaire (OBQ).	Adults 18+	Good occupational balance - created when there is a balance between occupational load, availability of time to do the occupations and recovery periods - can be linked to better sleep quality. OTs are key in supporting and creating this balance. (Magnusson et al., 2021)

Keep a consistent sleep and wake-time	Keep a consistent sleep and wake time, even on the weekends. Evidence suggests that it is more important to have a standard wake-time over sleep time.	Any	Based on **Circadian Rhythm Theory,** keeping your timing consistent aids in training your body's internal clock to sleep and wake up at appropriate times. This enhances your ability to fall asleep faster and wake up more refreshed. It is important to have a consistent wake-up time as your circadian rhythm is guided by your wake-time rather than your bedtime.
Bed is only for sleeping	Try not to use your bed for anything other than sleep and sex so that your body naturally associates your bed with sleep. Avoid staying in bed for too long or using it as a place to scroll on your phone, watch TV, eat, read or do work.	Any	Based on **stimulus control model** by Richard Bootzin which explores the relationship between environmental cues and the ability to sleep. Using the bed for anything other than sleep or sex may lead to stimulus dysfunction, increasing the likelihood of sleep disorders.
Sleep only when tired	Sleep only when you actually feel tired or sleepy, rather than spending too much time awake in bed. If you haven't been able to sleep after about 20 minutes, get up and do something calming or boring until you feel sleepy. Avoid doing anything that is too stimulating or interesting, as this may wake you up even more. When you finally feel tired, go back to your bed and try again.	Any	Based on **stimulus control model** by Richard Bootzin which explores the relationship between environmental cues and the ability to sleep. Using the bed for anything other than sleep or sex may lead to stimulus dysfunction, increasing the likelihood of sleep disorders. Sleeping only when tired ensures that the bed is only associated with sleepiness, not lying awake. Getting up after 20 min of difficulty with sleep prevents the reinforcement of wakefulness in bed. Doing something boring, outside of the bedroom, encourages the return of a calm and tired state

			before trying to sleep again, reinforcing the association between bed and sleep.
Prioritize sleep	Skipping sleep to work, study, socialize or exercise may be tempting, but sleep should be treated as a priority. Calculate a target bedtime based on your fixed wake-up time and do your best to be ready for bed around that time each night.	Any	This is supported by the **Two-Process Model of Sleep Regulation** which highlights the importance of balancing sleep pressure and circadian rhythms. Going to bed at a consistent time based on a fixed wake time helps align your body's natural sleep drive and internal clock for better sleep quality.
Make gradual adjustments to sleep times	Do not aim to adjust sleep times suddenly. Make small, step-by-step adjustments of up to an hour or two to support better sleep stability.	Any	This is supported by **Circadian Rhythm Theory** which emphasizes the role of the body's internal clock in regulating sleep-wake timing and how gradual shifts can allow your circadian rhythm to adapt smoothly, avoiding disruption to the system.

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INTERVENTIONS - SUBSTANCE USE

The following table provides an overview and description of the feasibility of 3 common sleep hygiene interventions. The focus of this intervention is substance use.

Interventions Discussed:

- Avoid caffeine
- Avoid nicotine
- Avoid alcohol

Strategy	Description	Age	Evidence/Theory
Avoid caffeine in the afternoon and evening	Caffeine can impact the body for up to 3-7 hours. Large doses of caffeine close to bedtime can be acutely disruptive to sleep. Avoid consuming any caffeine (coffee, tea, pop, chocolate, some medication).	Any	Caffeine is a stimulant that interferes with the brain's sleep signals by blocking adenosine, a chemical that promotes sleep. Even when taken hours before bed, it can delay sleep onset, reduce total sleep time, and decrease deep sleep. This leads to lighter, more disrupted rest. (Irish et al., 2015)
Avoid nicotine	If unable to avoid nicotine use, try to avoid nicotine for as long as possible before bed. ● ~At least 2-3 hours before bedtime	Any	Research shows that nicotine disrupts sleep by stimulating the central nervous system, leading to increased sleep latency, lighter sleep, and more nighttime awakenings. Evening use is particularly harmful, with studies linking it to reduced total sleep time and poor sleep efficiency. These findings support recommendations to avoid nicotine for several hours before bedtime (Irish et al., 2015).
Avoid alcohol	If unable to avoid alcohol use, try to avoid drinking alcohol for as long as possible before bed. ● ~At least 4-6 hours before bedtime	Any	Evidence shows that while alcohol can initially help people fall asleep faster, it disrupts sleep later in the night by reducing REM sleep and causing more awakenings. This effect is dose-dependent meaning that higher alcohol

			intake leads to greater sleep disruption. As a result, it's recommended to avoid alcohol in the hours before bedtime to preserve natural sleep cycles (Irish et al., 2015).

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INTERVENTIONS - DAYTIME SLEEP

The following table provides the overview and description of the feasibility of 2 common sleep hygiene interventions. The focus of this intervention is daytime sleep.

Interventions Discussed:

- Napping
- Sleep Restriction

Strategy	Description	Age	Evidence/Theory
Napping	Taking a small period of sleep during the day. If done during work, should be ideally during the afternoon, for around 15 minutes and in a reclined position (Takahashi et al., 2004, as cited in Robbins et al., 2019).	Adults (18+)	Some evidence for the benefits of napping to reduce fatigue and improve alertness; area for future research (Robbins et al., 2019).
Sleep Restriction	Aim: to limit the amount of time spent in bed to the actual time sleeping and to prolong sleep time; is generally feasible and less time consuming. • Determine the average estimated total sleep time (e.g., via sleep diary) • Restrict the time in bed to average estimated total sleep time • Incorporate components of bright light during the day and minimize exposure to light and sound at night. • Each week, determine the pt's weekly sleep efficacy • Increase total time in bed by 15-20 minutes when sleep efficacy	Older Adults	Generally feasible and not time consuming; though, patient compliance may still be difficult to obtain. Generally agreed to be helpful (Petit et al., 2003).

	exceeds 90% ● Decrease total time in bed by 15-20 minutes when sleep efficacy is below 80% ● Efficacy should be between 80-90% ● Brief mid-day naps are accessible early on but not long term		

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INTERVENTIONS - BEDTIME ROUTINE

The following table provides the overview and description of the feasibility of 6 common sleep hygiene interventions. The focus of this intervention is bedtime routine(s).

<u>Interventions Discussed:</u>

- Occupation based programs
- Establishing consistent routines
- Age appropriate bedtimes
- Avoid nighttime feeding in infants
- Eating before bed
- Hot baths/showers

Strategy	Description	Age	Evidence/Theory
Occupation Based Programs	Programs which involve altering one's schedule and activities Considers: • Lifestyle redesign: (see *sleep stability - intervention table*) • Education, set daily schedule based on occupational profile, encourage health management behaviour, discuss occupational balance and keeping busy during the day, review of cognitive behavioural exercises, physical exercise and general consultation (Akbarfahimi et al., 2020 as cited in Yoo et al., 2023) • Group and individual sessions (didactic education, medication, stimulus control, sleep restriction therapy, sleep hygiene, CBT,	Adults 18+	Overall effective (Yoo et al., 2023)

	role playing) (Joseph, 2018 as cited in Yoo et al., 2023)		
Establishing consistent routines before bed	Establishing evening and bedtime routines that are predictable and calming, including environmental considerations such as reducing noise, light and comfortable bedding. Other considerations for the routine should include limiting screen time, keeping consistent sleep/wake times and recognizing the impact of diet, exercise and stress on sleep.	Any	Creating a bedtime routine was found to maximize the quality of rest and sleep in children and adolescents aged 5-21 years old (Beisbier & Laverdure, 2020).
Age Appropriate Bedtimes	Based on age. Generally, children should not go to bed any later than 21:00h. ● For every 24 hour cycle, toddlers should get 11-14 h of sleep; preschoolers 10-13h, and school-children 9-11h ○ Toddler (1-2 y/o) ○ Preschooler (3-5 y/o) ○ School aged (6-13 y/o) When possible, these bedtimes should be consistent (e.g., no more than 30-60 minutes in variation). Wind down activities, such as a warm bath, avoidance of media, and keeping bedrooms cool, dark and distraction free can further support bedtime routine.	Peds	Strong support for ensuring that children wake and go to bed at times that allow them to obtain age-appropriate amounts of sleep. Moderate support for bedtimes no later than 9pm. Moderate support for maintaining a regular and consistent sleep schedule. Where: ● Strong - at least 3 studies w/ strong designs ● Moderate - at least 3 studies w/ mid-range studies (Allen et al., 2016)

Avoid nighttime feeding in infants aged 6 months+	For infants aged 6+ months, try to increase the interval between feeding over night until the habit is eliminated. Bottle-fed babies can be offered one ounce less at each feeding and at less frequent intervals until this habit is resolved. A protein snack shortly before bed for older children can help reduce hunger until morning.	Infants aged 6+ months	One consideration for infant sleep routine is the habit of feeding through the night. By 6 months of age, a baby should be able to sleep through the night without feeding or feeling hungry. Resolving this habit will support increased sleep duration and quality for both child and parent (Armstrong et al., 2014).
Eating before bed	Avoid caffeine after midday and large meals less than 3-4 hours before bedtime. A light snack or limited fluids before bedtime can be highly satisfying and relaxing.	Adults and older adults	Large meals before bedtime can disrupt digestion as well as interfere with your circadian rhythm. Similarly, caffeine is a stimulant that blocks adenosine, an important sleep neurotransmitter. This impacts overall sleep quality and quantity, making it difficult to both fall and stay asleep (Mitty & Flores, 2009).
Take a hot bath or shower	Having a hot bath or shower 1-2 hours before bedtime can be a useful strategy to encourage sleepiness.	Any age	Taking a hot bath or shower increases body temperature which may cause one to feel sleepy as body temperature drops post-bath. Additionally, taking a bath or shower can encourage muscle relaxation and lower blood pressure which promotes comfort and overall wellbeing to enhance sleep. (Sleep Foundation, 2024).

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CONCLUSION

NOTE ON INTERVENTIONS

NOTE I: According to Smallfield et al. (2018), occupational therapists are most effective in addressing sleep when they take a multicomponent approach. This means combining strategies such as exercise with goal setting and sleep hygiene education, rather than relying on a single intervention alone.

Other researchers who have underscored the value of a multicomponent approach:

- (Leroi et al., 2010)→ completed an RCT on a multi-component sleep therapy intervention for adults with Parkinson's disease. The therapy considered behavioural and educational components. Results indicated that modest improvements in sleep were possible and the treatment, as multi-modal, was well-tolerated and feasible.
- (Edinger et al., 2021) → clinical practice guideline which found sleep hygiene to be less effective than other interventions for chronic insomnia but can be beneficial when used in conjunction with other interventions, such as CBT-I.

NOTE II: Ludwig et al., (2022) affirmed that any interventions performed by an OT in the sleep hygiene realm ought to be backed by strong evidence.

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IN CLOSING

This compendium aimed to address the inconsistency and scarcity of sleep hygiene interventions/assessments available to occupational therapists. The goal with this resource was for therapists to be able to use it to quickly identify relevant and feasible assessments or interventions, as well as a high-level overview of the efficacy of each.

Ideally, having such a resource will allow occupational therapists to bring sleep hygiene back into focus, and will encourage discussion of the important role of sleep in occupation. As well, by having an easily accessible compendium of the most common assessments and interventions - informed by an extensive grey and academic literature search - clinicians, researchers and therapists alike will be able to appreciate the gaps in sleep research. This may result in a resurgence of new research initiatives and new questions.

Limitations: The research contained in this compendium focused mainly on western interventions/assessments which may result in less generalizability to other parts of the world. As well, there is a lack of explicit cultural consideration in the interventions/assessments presented, which may influence feasibility or relevance of the recommendation for any particular client.

Next Steps: To continue to explore the body of literature available on sleep hygiene and occupational therapy. Possible opportunity for further integration of occupational therapy specific models/theory in this practice area.

APPENDICES

Appendix A

Assessment Search Strategy

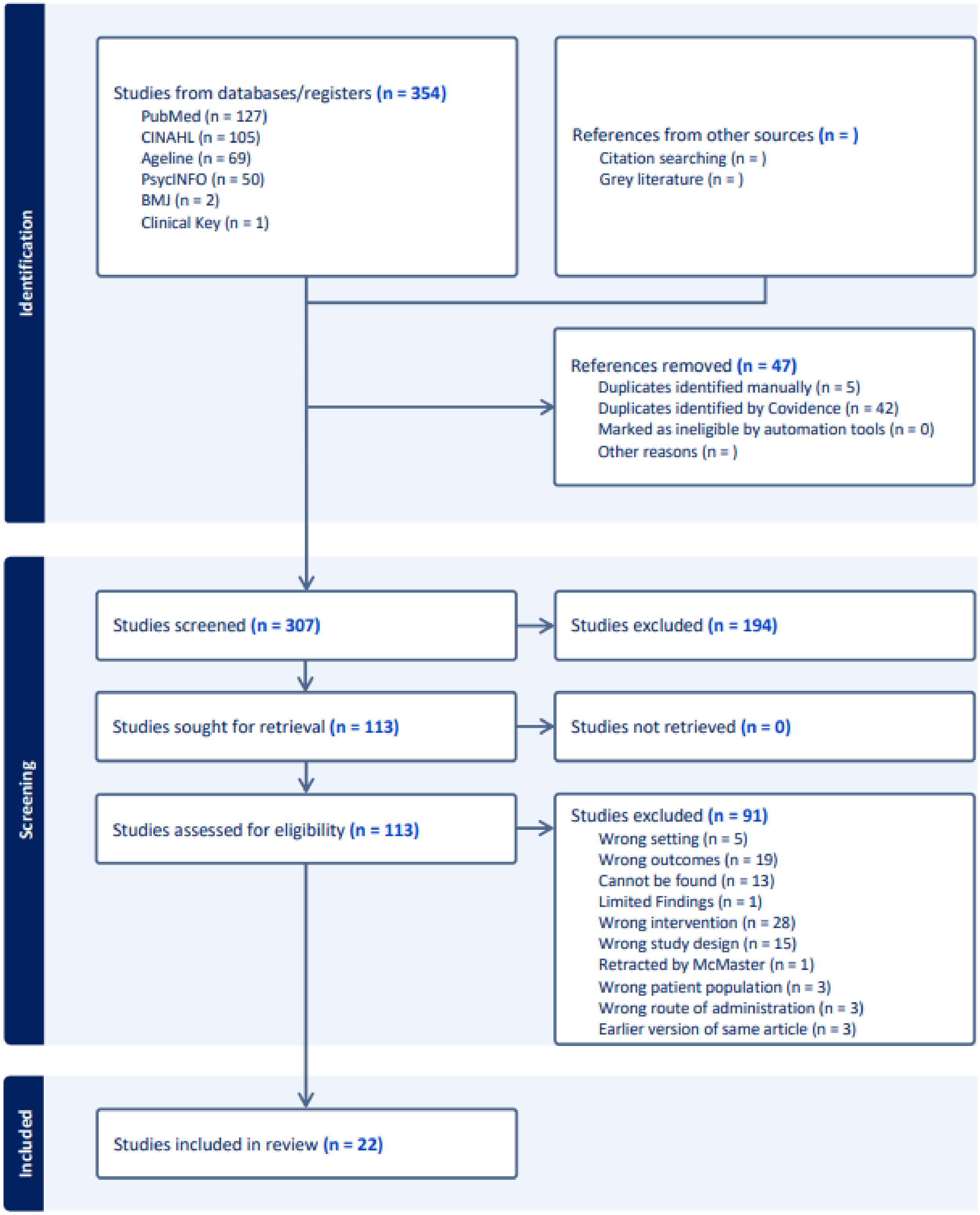
Question	Search Terms	Inclusion criteria	Exclusion criteria	Databases
What assessments are used by OTs to explore sleep hygiene and its impact on daily functioning across the lifespan?	<u>Population</u> Adult* *or* Older adult* *or* Young adult* *or* Youth* *or* Children *or* Senior* *or* Elderly* <u>Concept</u> Sleep* *and* Assessment* <u>Context</u> Occupational therap* *or* OT *or* Rehab*	• Diagnosed sleep disorders • Psychiatric/mental health conditions • Studies in English • Any age	• Moderate to severe cognitive impairment • Not specific to sleep or sleep hygiene	• Medline • Pubmed • Ageline • CINAHL • PsychInfo • ClincalKey • BMJ Best Practice

Appendix B

Intervention Search Strategy

Question	Search Terms	Inclusion criteria	Exclusion criteria	Databases
What sleep hygiene interventions are used by OTs to support clients across various populations?	<u>Population</u> Adult* *or* Older adult* *or* Young adult* *or* Youth* *or* Children *or* Senior* *or* Elderly* <u>Concept</u> Sleep* or Sleep hygiene* or Sleep habit* <u>Context</u> Occupational therap* or OT or Rehab*	• Diagnosed sleep disorders • Psychiatric/mental health conditions • Studies in English • Any age • Any year • Any study type	• Moderate to severe cognitive impairment • Studies on programs that did not disclose specific sleep hygiene strategies used • Improvement in sleep quality or quantity was not a focus • CBT-I	• Medline • Pubmed • Ageline • CINAHL • PsychInfo • ClincalKey • BMJ Best Practice

Appendix C
PRISMA Flow Diagram - Interventions



Appendix D

Overview of Sleep Assessments Used by OTs

Population	Assessment	Area of Interest
Any age	Insomnia Severity Index (ISI)	The nature, severity and impact of insomnia on sleep & daytime functioning.
	Pittsburgh Sleep Quality Index (PSQI)	Sleep quality over the last month.
	Sleep Diary/Sleep Activity Record	Record of sleep habits over at least 5 nights.
	Sleep Hygiene Index	Behaviours associated with compromised sleep hygiene.
Pediatrics (0-18)	Children's Sleep Habits Questionnaire (CHSQ)	The frequency of behaviours commonly associated with sleep difficulties.
	Adolescent Sleep Hygiene Scale (ASHS)	Sleep hygiene domains that are thought to influence sleep quality and quantity.
Adults (18+)	Athens insomnia Scale (AIS)	The impact of insomnia on sleep quality and quantity.
	The Epworth Sleepiness Scale (ESS)	Daytime sleepiness.
Older adults (65+)	Geriatric Sleep Questionnaire (GSQ-6)	Subjective sleep quality.

Appendix E

Overview of Sleep Hygiene Interventions Used by OTs

Domain	Strategy
Sleep environment	• Light therapy • Listening to music • Noise and sound considerations • Air quality and odour considerations • Temperature • Mattress and surface considerations • Lighting • Classroom modifications • Managing electronics • Weighted blankets • Compression t-shirts
Sleep stability	• Sleeping only when tired • Using the bed only for sleeping • Lifestyle redesign • Prioritize sleep • Parent education on infant behaviours • Consistent sleep and wake-time • Occupational balance • Gradual adjustments to sleep and wake-time
Bedtime routine	• Occupation-based programs • Avoid night time feeding • Avoid night time eating • Hot baths and showers • Age appropriate bedtimes • Consistent and predictable routines
Physiology	• Exercise • Sleep positioning and positioning devices • Touch-based • Stimulus control therapy • Sensory diet • Daylight exposure
Substance use	• Avoid the following substances for 3-6 hours before bed ○ Caffeine ○ Nicotine ○ Alcohol
Cognition	• Mindfulness strategies • Sleep education program
Daytime sleepiness	• Napping for 15 minutes • Sleep restriction
Emotion	• Stress management strategies