

DECIPHERING THE CONNECTION: AUTISM AND SLEEP QUALITY EXPLAINED

Adequate and refreshing sleep is important for [health and wellbeing](#). Poor sleep quality or insomnia can negatively affect multiple aspects of physical and mental health and can impair daytime functioning.

[Autistic adults generally report poor sleep quality](#) compared to non-autistic adults, and for most Autistic adults, getting good quality sleep each night can be a challenge.

Common sleep issues reported by Autistic adults include:

- [difficulty falling asleep](#)
- [night waking](#)
- [shorter night sleep](#)
- [poor sleep efficiency](#) (percentage of time in bed spent sleeping)
- daily (circadian) [sleep-wake patterns](#) that are not in tune with work, education and social activities.

More Australian Autistic adults met diagnostic criteria for [insomnia](#) (28%) than non-autistic adults (6%), and 44% of Autistic adults had a circadian sleep-wake disorder compared with 8% of non-autistic adults. [Autistic women](#) and those with [higher Autistic traits](#) have a higher risk of sleeping difficulties.

This article explores the complexities of Autism sleep research, including by OTARC researchers, providing a summary of why it can be so hard for Autistic adults to have a good night's sleep. The blog will also step you through what evidence-based supports are available.

** The following article contains mentions of suicide. If you or someone you know are experiencing mental health difficulties, you can find a list of mental health helplines on [healthdirect](#). For co-designed tips on how to detect and respond to suicide risk in others, see The Suicide Response Project [website](#) or the neurodivergent [RUOK website](#) page.*

UNDERSTANDING THE SLEEP-AUTISM CONNECTION

While research paints a complicated picture of factors that influence sleep quality for Autistic adults, many factors are similar to those found in non-autistic adults.

Let's explore what we know about sleep difficulties in Autistic adults.

Age

Overall, the risk of sleep problems is high across the lifespan for Autistic people compared with the general population. For some Autistic people, poor sleep may last many years or be lifelong. We found that [sleep quality generally did not improve over 2 years](#) for Australian Autistic 15- to 25-year-olds. Sleep challenges in Autism often begin in infancy or early childhood, and, unlike in the general population, these sleep challenges often [do not improve across childhood](#).

In adolescence, poor sleep is common for both Autistic and non-autistic people. However, [in adulthood, a marked difference emerges](#). For non-autistic adults, the proportion of adults reporting poor sleep quality doesn't vary much across different age groups. Whereas for Autistic adults, a higher proportion report poor sleep quality during early and middle adulthood.

Co-occurring mental health conditions

Poor sleep quality and insomnia are often associated with mental health conditions, particularly anxiety and depression, in the [general population](#). Autistic adults experience higher lifetime rates of [co-occurring mental health challenges](#) than the general population, including anxiety and depression ([Uljarević et al.](#); [Hollocks et al.](#)). [Autistic women](#) are more likely than Autistic men to experience significant anxiety or depression across the lifespan.

Multiple pathways may link anxiety, depression and sleep in Autistic adults. [Our 2023 study](#) found links between Autistic traits, intolerance of uncertainty, sensory issues, autonomic arousal, insomnia, anxiety and depression in Autistic adults. Insomnia had direct links to depression and anxiety.

The high rate of anxiety and depression in Autistic adults may explain why some Autistic adults have poor sleep. Conversely, poor sleep may also help explain the high rate of mental health challenges in Autism.

In general, poor sleep quality negatively affects physical and mental health, as well as quality of life, and it is [linked to suicidal tendencies](#), regardless of mental health issues.

Quality of life

Sleep quality is a predictor of quality of life for both [Autistic](#) and [non-autistic people](#). We explored factors (e.g., sleep quality, mental health) contributing to Autistic adults' [quality of life](#). We found that Autistic Australians generally self-reported a lower quality of life compared to their non-autistic counterparts, and this did not improve over the two years of the study; sleep quality and mental health were related to quality of life.

Fatigue and daily functioning

Daytime fatigue is both a symptom of poor sleep and depression and is independently [associated with poor sleep](#) and mental health, particularly anxiety and depression. Autistic adults experience [more fatigue and feel less refreshed](#) following sleep than non-autistic adults.

We investigated the relationships between sleep quality, fatigue, and social wellbeing and how they influence depressive symptoms in young Autistic adults (aged 15–25 years). The results revealed that [sleep quality, fatigue, and social wellbeing](#) all played a part in contributing to depression in young Autistic adults. Notably, fatigue and social wellbeing each independently showed a connection with depression.

Sensory sensitivities and arousal

Sensory concerns relate to how people react to and seek sensory input from different senses. Autistic people often experience the sensory world differently, described as hypersensitivity (over-responsiveness) or hyposensitivity (under-responsiveness) to sensory input (e.g. sight, sound, touch, balance). Only a few research studies have explored sensory differences and sleep.

[A recent review](#) found that Autistic children often experience sensory sensitivity differences and sleep issues at the same time. Some studies in Autistic children show that [sensory issues are associated with sleep](#) difficulties. In [young Autistic children](#), sensory issues may [predict sleep problems](#) later in childhood.

Our recent study in Autistic adults found that autonomic symptoms (physical responses linked to bodily states and activities – e.g. dizziness, sweating, gut problems, response to light) and sensory sensitivity contribute both directly to depression and indirectly to depression through [their impact on sleep](#).

Together, sensory sensitivity and autonomic symptoms suggest that pre-sleep somatic (bodily responses) [arousal](#) may explain why some Autistic adults have poor sleep.

These findings align with research showing a relationship between anxiety and sleep in Autistic individuals. In our study with Autistic adults, we found that [intolerance of uncertainty was linked to poor sleep](#), primarily because of its connections with anxiety and depression, rather than directly or indirectly predicting poor sleep.

“I am super noise sensitive and [if] something, anything, occurs; or the light level changes [it causes me sleep difficulties].”

Melatonin and the circadian clock

Our sleep-wake circadian rhythm (24-hour cycle) is controlled in the brain by the circadian clock and melatonin (a naturally occurring neurohormone).

Autistic adults may have [late \(delayed\)](#) or [early \(advanced\)](#) circadian sleep-wake rhythms compared to non-autistic adults. Many Autistic adults regularly fall asleep after 1 am and wake up in the late morning ([delayed sleep-wake circadian rhythm](#)). Some regularly go to sleep before 10 pm, wake up early in the morning, and may have trouble with night waking ([advanced sleep-wake circadian rhythm](#)). Because these sleep patterns may not match regular work, education or social schedules, circadian sleep-wake problems can disrupt those activities.

Differences in the 24-hour melatonin rhythm have been suggested to cause circadian sleep-wake problems or insomnia in Autistic people. Melatonin synchronises the sleep-wake rhythm to the 24-hour day. Melatonin level rises in the evening to prepare us for sleep; they are highest in the middle of the night, and low during the day. Some research has suggested that Autistic people's melatonin rhythm is different, with [lower melatonin levels](#) being present at night, but other studies have shown that [melatonin is normal](#) and generally [consistent with sleep-wake rhythms](#)

Melatonin has been used successfully to [treat sleep difficulties](#) in Autistic people. Melatonin can shift the timing of the sleep-wake rhythm depending on when it is taken; it is also soporific (helps make one sleepy) and anxiolytic (reduces anxiety).

The mechanism by which melatonin helps some Autistic people to sleep is unclear and may differ for different people.

Melatonin is a prescription medication. See your doctor if you think melatonin may help you.

Genetic influences

[Genetic factors may also affect sleep](#) in Autistic people, though current evidence is not strong.

[Clock genes control the circadian clock](#), and thus circadian rhythms, and have been associated with Autism, ADHD and mental health conditions. Some studies have found [differences in clock genes](#) in Autistic people. There is also some evidence that [melatonin genes may differ](#) in Autistic adults and thus affect sleep.

These genetic differences may help explain why some Autistic people have insomnia symptoms or circadian sleep-wake disorders.

THERAPEUTIC SLEEP SUPPORTS

Good sleep habits

One thing everyone can do to help promote good sleep is to practice [good sleep hygiene or daily sleep habits](#). These form part of all psychological/behavioural sleep treatments, and sometimes they can work on their own. Tips and habits that work for non-autistic people with sleep difficulties are likely to work for Autistic people too.

Have a look at the information provided by [Sleep Health Foundation](#) (Australia), especially the [Sleep hygiene: good sleep habits](#) and [Ten tips for a good night's sleep](#).

How much sleep do I need?

While people's need for sleep varies, there is a recommended range of hours of sleep for each life stage. In the general population, too little or too much sleep is associated with [poor physical and mental health](#).

You can find the recommended sleep range for your age in this [National Sleep Foundation Chart](#). The amount of sleep you need to function well each day may be at the bottom, middle or top of the range for your age.

Psychological interventions

The mostly-commonly recommended first-line treatment for adults in the general population is [cognitive behavioural therapy for insomnia \(CBT-I\)](#). There is some evidence that CBT-I is useful for insomnia in [Autistic children](#) and [adolescents](#).

Acceptance and Commitment Therapy (ACT) for Insomnia

OTARC, collaborating with [ACTUALISE Lab](#), and with input from three Autistic adults, co-developed an innovative new approach to supporting Autistic adults experiencing poor sleep. We evaluated the [efficacy of ACT-i](#), ACT combined with behavioural therapy, to treat insomnia in Autistic adults. Eight Autistic adults took part; they completed questionnaires (before, immediately after, and two months after the therapy), wore activity trackers, and kept sleep diaries.

Participant feedback

"I found it helpful to be in a supportive environment, one that understands ASD as well as meeting others with similar challenges."

"Giving us permission not to battle with sleep. Providing strategies to help."

"Learning not to fight the lack of sleep."

The results showed [significant improvements in insomnia and anxiety symptoms](#) following ACT-I, and most participants reported being satisfied with the program. Overall, our study suggests that ACT could be a helpful and acceptable treatment for insomnia and anxiety in Autistic adults.

Using feedback from our Autistic adult participants, we have improved ACT-i and re-named it SLEAPI. We are now undertaking further evaluation of SLEAPI.

Watch our stop motion video explaining the pilot study – <https://vimeo.com/387847472>

If you need more help...

If you've tried self-help techniques and have not seen an improvement in your sleep, speak to your general practitioner (GP). There are many reasons for sleep problems; some are medical (e.g., sleep apnoea, restless legs syndrome); some are psychological, and some are both. Your GP can:

- refer you to an appropriate sleep health professional, including arranging a [mental health treatment plan](#) to see a psychologist who treats sleep problems.
- prescribe medications that may help you sleep.

Further resources

- [Sleep Health Foundation \(Australia\)](#)
- [Sleep Disorders Australia](#)
- [National Sleep Foundation \(USA\)](#)
- [Autism CRC – Study of Australian School Leavers with Autism \(SASLA\) \(15-25 years\)](#)
- [Autism CRC – Australian Longitudinal Study of Autistic Adults \(ALSAA\) \(25 years+\)](#)

ACKNOWLEDGEMENTS

We acknowledge and value the contribution of the participants who were kind enough to contribute to the studies referenced in this body of work. Thank you to Dr Kelsey Philpott-Robinson for reviewing the sensory sensitivity section of this article and Melinda Denham for copy editing.

Authored by Professor Amanda Richdale and Alex Haschek, March 2024.

La Trobe University is committed to supporting research that fulfils the United Nations' Sustainable Development Goals. This article aligns with La Trobe University's [Healthy people, families and communities](#) research theme, contributing to United Nations' Sustainable Development Goal three - [Good health and wellbeing](#) - ensuring healthy lives and promoting wellbeing at all ages.

Copyright

This article is under copyright - Attribution-NonCommercial-NoDerivs (CC BY-NC-ND). For more information, visit <https://creativecommons.org/licenses/by-nc-nd/4.0/>