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Music's Impact on Sleep Disorders

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INTRODUCTION

Sleep plays an important role for maintaining physical and mental health and is critical for general well-being. [1] The 5-item World Health Organization Well-Being Index (WHO-5) is among the most widely used questionnaires assessing subjective psychological well-being. It measures subjective quality of life using the five items [2]:

1. 'I have felt cheerful and in good spirits'
2. 'I have felt calm and relaxed'
3. 'I have felt active and vigorous'
4. 'I woke up feeling fresh and rested'
5. 'My daily life has been filled with things that interest me'

Notice that the quality of sleep is an important factor (question #4) in the World Health Organization's assessment of one's physical and mental well-being. Based on research from Harvard, Mayo Clinic, Journal of Advanced Nursing, WebMD, the Sleep Foundation, Scientific Reports, Frontiers in Psychology, and several other research reports, this article addresses music's ability to help improve the quality of sleep. We begin with an

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overview of sleep disorders, then review what the research tells us about why music can improve the quality of sleep, and finally based on this research, we offer some suggestions and recommendations on how you can begin to improve the quality of your sleep using music.

THE RISKS, THE PROBLEM:

Sleep disturbances are highly common in our society, with increased prevalence in aging. [9] Around 40% of adults in the UK suffer from disrupted sleep, a trend mirrored in the United States with approximately 50–70 million American adults reporting sleep difficulties. Sleep loss has been linked to a range of physical and mental health issues, with short-term effects evident after a single night of poor sleep. Short-term memory may be impaired and those affected report lower levels of happiness and more feelings of depression. If short term sleep loss is not remedied there is the risk that it may become chronic, a situation associated with serious health and wellbeing challenges. [1]

In the United States, a survey suggested a 293% increase in the number of sleep related prescriptions from 5.3 to 20.8 million prescriptions from 1999 to 2010. Pharmaceutical sleep aids have been linked to negative side effects that increase with long-term use, including nausea, dizziness, dependency and withdrawal, amnesia, seizures, and even an increase in mortality. Given the prevalence, cost, and potentially harmful side effects of pharmaceutical sleep aids, the search for low cost, non-pharmaceutical alternatives aid has become a priority. [1]

The use of sleep enhancing medicine is problematic, as its effectiveness decreases across time and may lead to addiction. Consequently, researchers are working to empirically validate the effectiveness of non-pharmacological and easy to implement tools to support healthy sleep. Listening to music is a widely used tool to improve sleep. In an online survey in a general population 62% stated to have at least once used music to help them sleep. In a survey in over 500 patients with sleep disorders, over 50% reported using music as sleep aid. [9]

Sleep Disorders and Depression

Depression is a common health problem and an increasing global burden. The World Health Organization (WHO) found unipolar depression to be the third largest burden of disease globally in 2004 and is projected to rank first in 2030 [1]. A result of depression is the loss of social and cognitive functions and quality of life. One of the symptoms in depression is reduction in sleep quality (insomnia). Sleep disturbances associated with depression include difficulties in falling asleep and maintaining sleep. [2]

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Sleep Disorders and Dementia

Recently, a large new study reports some of the most persuasive findings yet to suggest that people who don't get enough sleep in their 50s and 60s may be more likely to develop dementia when they are older. [5,6] The research, tracking thousands of people from age 50 on, suggests those who sleep six hours or less a night are more likely to develop dementia in their late 70s. [5,6]

The research, published in the journal Nature Communications, followed nearly 8,000 people in Britain for about 25 years, beginning when they were 50 years old. It found that those who consistently reported sleeping six hours or less on an average weeknight were about 30 percent more likely than people who regularly got seven hours sleep (defined as "normal" sleep in the study) to be diagnosed with dementia nearly three decades later. [5,6]

Sleep Disorders and Death from Cardiovascular Disease

Research from the University of Adelaide in Australia and Maastricht University Medical Centre in The Netherlands examined the impact of "unconscious wakefulness" on a person's risk of dying from cardiovascular diseases. [4] The researchers examined people aged between 64 and 84 for six to 11 years. The study of 8,000 men and women found women who experience unconscious wakefulness most often and for longer periods had nearly double the risk of dying from a heart problem. [4] Women are almost twice as likely to suffer from serious heart problems when experiencing regularly disrupted sleep. [4] Overall, the risk of dying from any cause was 21% among women in the general population, which increased to 31.5% among women with an arousal burden of more than 6.5%. [4]

MUSIC CAN HELP SLEEP DISORDERS? PROVE IT TO ME!

The music-sleep connection has been supported in studies all over the world. It works in young people and elderly, and helps people with both short-term and chronic sleep problems. [7] A recent meta-analysis of 17 non-pharmacological sleep aids found music-assisted relaxation to be the only non-pharmacological intervention with a significant effect size. [8]

In one study, adults who listened to 45 minutes of music before going to sleep reported having better sleep quality beginning on the very first night. Even more encouraging is that this benefit appears to have a cumulative effect with study participants reporting better sleep the more often they incorporate music into their nightly routine. [10] Using

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music can also decrease the time it takes to fall asleep. In a study of women with symptoms of insomnia, participants played a self-selected album when getting into bed for 10 consecutive nights. Before adding music to their evening routine it took participants from 27 to 69 minutes to fall asleep, after adding music it only took 6 to 13 minutes. [10] In addition to facilitating quickly falling asleep and improving sleep quality, playing music before bed can improve sleep efficiency, which means more time that you are in bed is actually spent sleeping. Improved sleep efficiency equals more consistent rest and less waking up during the night. [10]

Why Does Music Affect Sleep?

The ability to hear music depends on a series of steps that convert sound waves coming into the ear into electrical signals in the brain. As the brain interprets these sounds, a cascade of physical effects are triggered within the body. Many of these effects either directly promote sleep or reduce issues that interfere with sleep. [10] Music has many promising neurological and physiological effects that may be indicative of its effective use in the fight against sleep loss. [2] Music can reduce sympathetic nervous system activity, decrease anxiety, blood pressure, heart and respiratory rate and may have positive effects on sleep via muscle relaxation and distraction from thoughts. [9] Music is most useful for people who struggle to sleep because of insomnia related to anxiety or stress, rather than medical issues like sleep apnea. [16]

Several studies suggest that music enhances sleep because of its effects on the regulation of hormones, including the stress hormone cortisol. Being stressed and having elevated levels of cortisol can increase alertness and lead to poor sleep. Listening to music decreases levels of cortisol, which may explain why it helps put people at ease and release stress. [10] A study measuring self-reported relaxation in groups with different objective levels of oxytocin release found that music increased oxytocin and accordingly levels of relaxation compared to control groups. [1] Music also triggers the release of dopamine, a hormone released during pleasurable activities, like eating, exercise, and sex. This release can boost good feelings at bedtime and address pain, another common cause of sleep issues. [10]

Listening to music can also contribute to relaxation by soothing the autonomic nervous system. The autonomic nervous system is part of your body's natural system for controlling automatic or unconscious processes, including those within the heart, lungs, and digestive system. Music improves sleep through calming parts of the autonomic nervous system, leading to slower breathing, lower heart rate, and reduced blood pressure. [10]

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It was also reported that masking external sounds, which can often lead to poor sleep quality, was a significant motivation for using music during sleep. Night-time noise, whether it's from roads, airplanes, or noisy neighbors, can decrease sleep efficiency and is linked to several adverse health consequences including cardiovascular disease. Music can help to drown out these environmental noises and increase sleep efficiency. [10]

Many people with poor sleep associate their bedrooms with frustration and sleepless nights. Music can counteract this, distracting from troubling or anxious thoughts and encouraging the physical and mental relaxation needed to fall asleep. [10]

The main reason people reported using music was as a tool to change one's state of mind; whether to relax, focus or initiate a change in mood. This finding is in line with previous research which has suggested that music is used as part of everyday life to regulate mood or reduce arousal and anxiety. It has been suggested that the effects of music on anxiety are biological; music's effect on sleep could well be mediated by these biological effects, and the autonomic systems for anxiety and arousal in particular. If these complex chemical and neural systems are being recruited by the use of music, it is reasonable to suggest that the use of music over long periods of time may come with increasing or long-term benefits. [10]

While a primary reason to select music for sleep is to aid relaxation, research has identified a larger collection of motivators for using music when sleep is disturbed. The use of music as a distractor was a prominent theme, with distraction against thoughts (and particularly negative thoughts) a frequent comment. Negative thoughts are one of the main contributors to sleep loss in people with insomnia and distraction of these thoughts was one of the main reasons reported for the use of music. [10]

USING MUSIC TO COMBAT SLEEP DISORDERS: SUGGESTIONS AND RECOMMENDATIONS

Based on research from various sources (see References below), we have gathered here the best practices suggested by the research teams for utilizing music to improve the quality of sleep.

Give yourself time to unwind and develop bedtime rituals

Make it a habit: Routine is great for sleep. Create evening rituals that give the body sufficient time to wind down, incorporating music in a way that's calming and consistent. [10] Start listening to quiet music 20 to 45 minutes before bedtime. TV, smart phones, tablets, and computers should not be a part of the quiet time. [14]

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Give it time

Research has found that music may not improve sleep quality after a single exposure to music at bedtime and suggests that at least 3-4 weeks of treatment is required to reveal the effectiveness of music as a sleep aid. [8]

Keep the volume low

Research indicates the volume should be kept under 40 decibels, which is about as quiet as comfortably possible. [16]

What Kind of Music is Best for Sleep?

Research studies have looked at diverse genres and playlists and there isn't a clear consensus about the optimal music for sleep. [10] One of the most significant factors in how music affects a person's body is their own musical preferences. Effective custom playlists may include songs that have been relaxing or that have helped with sleep in the past. [10]

In terms of what individuals chose to listen to within the music available to them, researchers noted a large diversity within their responses, with great variety in the musical genres (although classical music mentioned three times more than any other genre). This suggests support for the theory that self-selected music is more effective than unfamiliar music. [1]

But choose wisely! Research has indicated that patient-selected music has a risk of being too stimulating (effect-evoking or too dynamic, i.e. increasing pulse and respiratory rate). [1] Avoid songs that cause strong emotional reactions: We all have songs that bring up strong emotions. Listening to those while trying to sleep may not be a great idea, so try music that's neutral or positive. [10]

For those that don't want to design their own playlist, online music services have stepped in and usually offer pre-packaged playlists for specific activities. Helpful playlists may be curated for sleep or relaxation. It may be easiest to find playlists that focus on calming genres, like classical or piano pieces. [10]

Feel free to experiment with different songs and playlists until you find one that's right for you. It may also be helpful to try out a few playlists during the daytime to see if they help you relax. [10]

Musical features to aid sleep

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Recent research suggests why individuals can fall asleep to a wide variety of music genres. Certain musical features appeared to be more important than the genre in aiding sleep. Music that aided sleep had more emphasis in lower frequencies such as a stronger bass, had a slow and sustained duration of musical notes, and had non-danceable rhythms. In music terms, the music had quite a dark mix, it was legato, and was not complex or strong in rhythmic activity. [16]

Several studies have found that the music's tempo makes a difference. Most studies have selected music that is around 60-80 BPM. Because normal resting heart rates range from 60 to 100 BPM, it's often hypothesized that the body may sync up with slower music. [10]

Equipment: Speakers and Headphones

Be careful with headphones: Headphones and earbuds may cause damage to the ear canal while sleeping if the volume is too high. Sleeping with earbuds can also lead to a buildup of earwax and may increase the risk of ear infections. Instead, try setting up a small stereo or speaker somewhere close to the bed. Choosing speakers without bright light, which can interfere with sleep, and find a volume that is soothing and not disruptive. [10] You can also use pillow speakers. These devices are exactly what they sound like: pillows with speakers inside them. They come in a variety of sizes and price ranges, but they're all designed to allow you to comfortably listen to music in bed. [7]

Specific Music for Combating Sleep Disorders

Below are links to several pieces of music that were specifically mentioned in the research that we encountered. One research project specifically reported that Johann Sebastian Bach was the most mentioned artist for aiding sleep in their study, followed by Ed Sheeran. and Wolfgang Amadeus Mozart, Brian Eno and finally, Coldplay and Fré'dé'ric Chopin. [1]

Not a classical music fan? That's fine. The Marconi Union song "Weightless" -- which is allegedly the "most relaxing song ever created" "[Weightless](#)"-- also clocks in at 60 beats per minute. Some find Joni Mitchell's "[Blue Motel Room](#)" or Miles Davis's "[Blue in Green](#)" to be sleep-inducing. The better choice is often music with no words. Steer clear of anything that evokes strong emotions, as well -- regardless of whether they're positive or negative. [7] Below is a further sampling of successful sleep aid music identified by research. [16]

Table 1. A Sampling of Successful Sleep Aid Music

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[J'y Suis Jamais Alle](#) (Tiersen, 2010)
[Moonlight Sonata](#) (Beethoven)
[You Are So Beautiful](#) (Gibson & Evans)
[Clair de Lune](#) (Debussy)
[Nuvole Bianche](#) (Einaudi)
[Piano Concerto No. 21](#) (Mozart)
[3 Hours of Relaxing Music](#) (The Honest Guys)
[Kiss the Rain](#) (Yiruma)
[Poem](#) (Yiruma)
[River Flows With You](#) (Yiruma)

Giving a choice of music and offering a selection of music with a variety to meet individual preferences are both important factors highlighted in research. [2] And to support your exploration of sleep music, here are some additional links to music to facilitate your quality of sleep.

More Playlist Suggestions for Sleep Disorders

Ambient/Electronic

[Eternity-10 hours](#)
[Fall Asleep in 3 minutes-12 hours](#)

Classical

[Classical Sleep-8 hours](#)
[Cello for Falling Asleep](#)
[10 hours Classical for Sleeping](#)

30-60 Beats per Minute

[Come Away With Me](#) (Nora Jones)
[Metronome 30 Beats per Minute](#)
[Metronome 40 Beats per Minute](#)
[Metronome 50 Beats per Minute](#)
[Metronome 60 Beats per Minute](#)

Harp

[Relaxing Harp Sleep Music-6 hours](#)

[Harp Music-3 hours](#)

[Soothing Sleep Harp-8 hours](#)

Instrumental

[Spring-Beautiful Relaxing Music](#)
[Ancient Forest](#)
[Relaxing Sleep-8 hours](#)

Jazz

[Sleep Jazz-4 hours](#)
[Sleep Jazz-10 hours](#)
[Late Night Jazz-11 hours](#)

Nature

[Instant Calm Sleep](#)
[Nature Sounds-8 hours](#)
[Ocean, Forest-8 hours](#)

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World Music

Turkish, [Istanbul Dreams](#)

African, [Relax African Music](#)

American, [Native American Sleep](#)

Peruvian, [Peruvian Flute](#)

Chinese, [Traditional Chinese](#)

Italian, [Venetian Lute](#)

Tibetan, [Tibetan Sleep Music-8 hours](#)

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1. ["The music that helps people sleep and the reasons they believe it works: A mixed methods analysis of online survey reports" - PLOS ONE](#)
2. ["Music to improve sleep quality in adults with depression-related insomnia" BMC](#)
3. ["Effects of Relaxing Music on Healthy Sleep" Scientific Reports](#)
4. ["Disrupted sleep can increase risk of death, say researchers from University of Adelaide and Maastricht medical centre" - Sky News](#)
5. ["Sleeping Too Little in Middle Age May Increase Dementia Risk" - NY Times](#)
6. ["Association of sleep duration in middle and old age with incidence of dementia" - Nature Communications](#)
7. ["Can Music Help Me Sleep?"- WebMD \(Bob Barnett\)](#)
8. ["Music on Prescription to Aid Sleep Quality: A Literature Review" National Institute of Health](#)
9. ["Music improves sleep quality in students" - Journal of Advanced Nursing](#)
10. ["Music and Sleep: Can Music Help You Sleep Better?" - Sleep Foundations](#)
11. ["Music and health" Harvard Health](#)
12. ["Music and health" Harvard Health](#)
13. ["Setting the Stage for Sounder Sleep" - Harvard Healths](#)
14. ["Healthy sleep habits" American Academy of Sleep Medicine](#)
15. ["Mayo Clinic Health System offering tips for stress-related sleep disruption"](#)
16. ["Study reveals the relaxing music to help you sleep" - UNSW \(Australia\)](#)

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