Sleep Disorder in COVID-19 Pandemic

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Abstract

COVID-19 has impacted sleep-health in various ways. There has been a substantial increase in the number of patients or subjects with sleep issues, with majority reporting delayed onset, fragmented and/or poor-quality sleep. Sleep is a restorative process; is very crucial to body's response to anything that's foreign and serves as a repairing phase of our system. Sleep is generated by our brain; it is of the brain and most importantly for the brain. The universal lockdown due to COVID-19 pandemic has created many sleep related mental issues.

INTRODUCTION

The novel coronavirus (also known as COVID-19) has brought the world into uncharted waters. Sleep problems have emerged as the latest casualty of the COVID-19 crisis. Several countries are witnessing lockdown, the economy has grounded to a halt, and many people are afraid for themselves and their loved ones. Isolation, loss of work, economic and health worries along with disruption of work, school, and home life can increase stress, anxiety and depression with resultant deterioration of the quality and quantity of sleep. Too many sleepless nights can aggravate both physical and mental health problems (Figure 1). With such rapid and unprecedented pandemic related changes, the importance of sleep seems to be flying under the radar. But as we adjust to stay-at-home orders and try to remain healthy in COVID-19 times, focusing on sleeping well offers tremendous benefits.

Sleep is critical to physical health and effective functioning of the immune system. It is also a key promoter of emotional wellness and mental health, helping to beat back stress, depression, and anxiety. Whether one had sleeping problems before COVID-19 or if they have only come on recently, there are concrete steps to help improve your sleep during this global pandemic.

What Are the Challenges to Sleep During a Pandemic?

Millions of people suffered from insomnia even before the coronavirus, and unfortunately, the pandemic created a host of new challenges even for people who previously had no sleeping problems. The COVID-19 pandemic doesn’t
Some of the Ways the Coronavirus Pandemic can Impact Your Sleep

Include

Disruption of Daily Life

Social distancing, school closures, quarantines and working from-home: significantly impact daily routines of people across all ages and walks of life.

- It can be difficult to adjust to a new daily schedule or lack of a schedule.
- Keeping track of the time, and even the day, can be hard without typical time “anchors” like dropping kids at school, arriving at the office, attending recurring social events, or going to the gym.
- Being stuck at home, especially with low levels of natural light, reduces light-based cues for wakefulness and sleep, known as “Zeitgebers”, which are crucial for circadian rhythm.
- If you are not working at the moment or your weekly hours have been decreased due to COVID-19, you may be tempted to oversleep each morning. Sleeping more than seven to eight hours per night can make waking up on time much more difficult, even if you use an alarm. Over sleepers may also feel groggy, irritable and unfocused throughout the day.

Anxiety and Worry

Worries seem plentiful in this COVID-19 pandemic era. Naturally, many people fear catching the coronavirus because they don’t want to get sick or infect other people inadvertently. Most people have close friends or family who are older or in high-risk groups because of pre-existing conditions, spurring worries about their health and safety. Economic concerns are affecting nearly everyone as well. As economic activity stalls and job losses mount, it seems normal to worry about income, savings, and making ends meet. There is still so much unknown about this pandemic - how much the disease will spread, whether hospitals can manage the crisis, how long lockdowns will last, when the economy can recover - and such uncertainty often brings anxiety that disrupts sleep as a racing mind keeps the body tossing and turning.

Depression and Isolation

This crisis can bring about isolation and depression that may be even worse for people who have a loved one who is sick or has passed away from COVID-19. Grief and depression can be exacerbated by isolation at home, and both are known to have the potential to cause significant sleeping problems.

Greater Family and Work Stress

Many families are under serious stress as a result of the coronavirus. Cancelled trips, isolation from friends, and an abundance of time cooped up at home can place a strain on anyone. Keeping up with work-from-home obligations or managing a house full of children who are accustomed to being at school can pose real problems, generating stress and discord that have been shown to be barriers to sleep.

Excess Screen Time

Whether it is about checking the news on your phone, joining a Zoom meeting with family, binge-watching Netflix, or putting in extra hours staring at a computer while working-from-home; social distancing can mean a huge increase in screen time. Excess screen time, especially later in the evening, can have detrimental effect on sleep. Not only can it stimulate the brain in ways that make it hard to wind down, but the blue light from screens can suppress the natural production of melatonin, a hormone that the body makes to help us sleep.

Stress-related Fatigue

The chronic stress of living through a pandemic can lead to a host of physical symptoms, including persistent headaches, memory lapses, and digestive problems. Stress-related fatigue is another common side effect. The Mayo Clinic defines fatigue as “a nearly constant state of weariness that develops over time and reduces your energy, motivation and concentration.” Even if you receive an adequate amount of sleep at night, fatigue...
can still leave you feeling tired and unmotivated in the morning (Figure 1).

**Normal Sleep Cycle from Bedtime to Morning**

Sleep is governed by two systems: the homeostatic and the circadian. The homeostatic system is more internal and is simply a function of how much sleep you have had and when you need more. The circadian system is pegged more to the external - the 24-hours clock and the day light-nighttime cycle. “The two systems are independent but interlocking.”

**Generalizations about Sleep in Adult**

- Stage 1 sleep generally constitutes approximately 2 to 5% of sleep.
- Stage 2 sleep generally constitutes approximately 45 to 55% of sleep.
- Stage 3 sleep generally constitutes approximately 3 to 8% of sleep.
- Stage 4 sleep generally constitutes approximately 10 to 15% of sleep.
- NREM sleep, therefore, is usually 75 to 80% of sleep.
- REM sleep is usually 20 to 25% of sleep, occurring in discrete episodes.
- Wakefulness in sleep usually accounts for less than 5% of the night.

**Why is Sleep Important During a Pandemic?**

Sleep is a critical biological process, and the truth is that it’s always important. For a protracted period of time, humans were concerned why sleep was such an important necessity of life. Till date the function of sleep continues to be debated. During the COVID-19 pandemic, though, sleep becomes even more essential because of its wide-ranging benefits for physical and mental health.

- **Storage of energy:** Sleep deprivation causes extinction or poverty of energy and vice versa. Sleep decreases the basal metabolism by about 5 to 25%.
- **Restoration of tissues and growth:** Sleep causes the secretion of growth hormones and helps in cell mitosis and protein synthesis during the first hour of sleep.
- **Thermoregulation:** Sleep decreases the body temperature which is necessary for preservation of energy.
- **Regulation of emotions:** Sleep deprivation causes deviation of human normal behaviour in the form of decreased concentration, diminished interest in distinct goal, etc. Slow wave sleep deprivation particularly induces depressive and hypochondriac states. This postulate is supported by the fact that depressed patients show lower duration of NREM, and metabolic rates and neuronal discharge are higher in brain regions that take control of emotions (limbic structures) during NREM sleep in contrast with waking state.
- **Neural maturation:** REM sleep of total sleep decreases with age. First 6 months of life, children spend around 80% of sleep in REM compared to 25% in young adults. So it is postulated that REM sleep helps in maturation and myelination of nerve fibers.
- **Learning and Memory:** Both the phases of sleep i.e., non-rapid eye-movement (NREM) and rapid eye-movement (REM) sleep play a vital role in consolidation of memory and learning. Reprocessing of information and learning is also related to sound sleep. The transfer of information from cortex to hippocampus play a key role in consolidation and learning. There

![Figure 1: Effects of sleep deprivation on the body](Pietrangelo, 2014)
is an information transfer between cortex and hippocampus during the sleep that realizes the fixation of memory traces or during REM sleep the insignificant bindings are abolished. Experts agree that getting consistent, high-quality sleep improves virtually all aspects of health, which is why it is worthy of our attention during the coronavirus pandemic.

**Guidelines to Sleeping Well During the COVID-19 Outbreak**

In spite of the daunting challenges, there are a handful of steps that can promote better sleep during the coronavirus pandemic. If these efforts don’t pay off immediately, don’t give up. It can take time to stabilize one sleep and adapt these suggestions to best fit specific situations.

**Set Your Schedule and Routine**

Establishing a routine can facilitate a sense of normalcy even in abnormal times. It’s easier for your mind and body to acclimate to a consistent sleep schedule, which is why health experts have long recommended avoiding major variation in your daily sleep times.

**Sleep-specific aspects of your daily schedule should include**

- **Wake-Up Time:** Set your alarm, bypass the snooze button, and have a fixed time to go every day started.
- **Wind-Down Time:** This is an important time to relax and get ready for bed. It can involve things like light reading, stretching, and meditating along with preparations for bed like putting on pajamas and brushing teeth. Given the stress of the coronavirus pandemic, extra wind-down time each night seems wise.
- **Bedtime:** Pick a consistent time to actually turn out the lights and try to fall asleep.

In addition to time spent sleeping and getting ready for bed, it can be helpful to incorporate steady routines to provide time cues throughout the day, including:

- Showering and getting dressed even if you aren’t leaving the house.
- Eating meals at the same time each day.

**Blocking Off Specific Time Periods for Work and Exercise.**

**Reserve Bed For Sleep**

Sleep experts emphasize the importance of creating an association in your mind between your bed and sleep. For this reason, they recommend that sleep and sex be the only activities that take place in your bed. This means that working-from-home shouldn’t be working-from-bed. It also means avoiding bringing a laptop into bed to watch a movie or series. On any given night, if you find that you’re having a hard time sleeping, don’t spend more than 20 minutes tossing and turning. Instead, get out of bed and do something relaxing in very low light, and then head back to bed to try to fall asleep. Frequently changing your sheets, fluffing your pillows, and making your bed can keep your bed feeling fresh, creating a comfortable and inviting setting to doze off.

**See the Light**

Exposure to light plays a crucial role in helping our bodies regulate sleep in a healthy way. As you deal with disruptions to daily life, you may need to take steps so that light-based cues have a positive effect on your circadian rhythm.

- If you can, spend some time outside in natural light. Even if the sun isn’t shining brightly, natural light still has positive effects on circadian rhythm.
- Many people find outdoor time is most beneficial in the morning, and as an added bonus, it’s an opportunity to get fresh air. As much as possible, open windows and blinds to let light into your home during the day.
- Be mindful of screen time. The blue light produced by electronic devices, such as mobile phones, tablets, and computers, has been found to interfere with the body’s natural sleep-promoting processes. As much as possible, avoid using these devices for an hour before bed. You can also use device settings or special apps that reduce or filter blue light.

**Be Careful with Naps**

If you’re home all day, you may be tempted to take more naps. While a short power nap early in the
afternoon can be useful to some people, it’s best to avoid long naps or naps later in the day that can hinder nighttime sleep.

**Stay Active**

It’s easy to overlook exercise with everything happening in the world, but regular daily activity has numerous important benefits, including for sleep.

If you can go for a walk while maintaining a safe distance from other people, that’s a great option. If not, there is a wealth of resources online for all types and levels of exercise. Many gyms and yoga and dance studios are live-streaming free classes during this period of social distancing.17

**Practice Kindness and Foster Connection**

It might not seem critical to your sleep, but kindness and connection can reduce stress and its harmful effects on mood and sleep.

Despite all the bad news that you may come across, try to find some positive stories, such as how people are supporting one another through the pandemic. You can use technology to stay in touch with friends and family so that you can maintain social connections despite the need for social distancing.18

**Utilize Relaxation Techniques**

Finding ways to relax can be a potent tool in improving your sleep. Deep breathing, stretching, yoga, mindfulness meditation, calming music, and quiet reading are just a few examples of relaxation techniques that you can build into your routines. If you’re not sure where to get started, check out smartphone apps like Headspace and Calm that have programs designed for people new to meditation.

Another relaxation strategy during this pandemic is to avoid becoming overwhelmed by coronavirus-related news. For example, you can try techniques including:

- **Bookmarking one or two trusted news sites and visiting them only during a limited, pre-set amount of time each day.**
- **Cutting down the total time that you spend scrolling on social media.** If you want a hand in this effort, a number of apps can monitor and even block your time on social media sites or apps each day.
  - Scheduling phone or video calls with friends and family and agreeing in advance to focus on topics other than the coronavirus.
  - Sleep-promoting medicines, however, are generally reserved for only fleeting cases of insomnia, and then prescribed for no more than two weeks.19

**Conclusion**

Everyone wants to turn the page on COVID-19 as soon as possible. The pandemic will subside in due course like many other outbreaks in the past. Human civilization has progressed based on hope and scientific temperament. But the physical and mental setbacks because of COVID-19 will have long term consequences. Sleep forms a critical factor for mental health and a timely and holistic approach to sleep disorder will have long term benefits.

**References**

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