



Human Circadian Rhythm and Social Distancing in the COVID-19 Crisis

Heon-Jeong Lee^{1,2}

¹Department of Psychiatry, Korea University College of Medicine, Seoul, Korea

²Chronobiology Institute, Korea University, Seoul, Korea

Social distancing is a set of non-pharmaceutical interventions and measures that may be recommended during pandemics. Social distancing is practiced to prevent the spread of a contagious disease by increasing the physical distance or reducing the number of times people come into close contact with each other [1]. Social distancing has become a strong shield in the fight against the virus causing coronavirus disease 2019 (COVID-19). To curtail the spread of COVID-19 and avoid overburdening the healthcare systems, several social distancing measures have been enforced, including closure of schools and workplaces, isolation, and restriction of public movement.

Although social distancing is effective to prevent COVID-19 transmission [2], it has various social, economic, and health problems. One of them is increasing the risk of circadian rhythm disturbances due to the loss of daily routine and irregular pattern of living. Therefore, practice of social distancing should not be the only emphasis. Concomitantly, it is important to maintain the daily routine of life and ensure regular circadian rhythms.

Maintaining the circadian rhythm is essential for good health. The circadian clock, which is found in almost every organ of the body and the brain, is pivotal for a well-functioning immune system. Synchronization of the circadian rhythms in the lungs, heart, liver, and brain ensure continuation of routine physiological processes. It also ensures the maintenance of a healthy immune system that can effectively fight and defeat the virus. Recent studies demonstrate the importance of circadian rhythms and sleep in

immune homeostasis. Both innate and adaptive immune responses have a time-of-day-dependent functions [3]. Asynchrony of the biological clock degrades the effectiveness of the immune system. A disrupted circadian rhythm weakens the immune system, lowering the ability to defeat the virus [4].

Circadian rhythm disturbances—due to insufficient exposure to sunlight and inadequate lighting—are not restricted to prisons [5]. Social distancing also affects mental health. Limited social interactions can reduce nighttime activities and light exposure, which have somewhat positive effects on circadian rhythm. However, spending prolonged days or weeks at home with limited resources, stimuli, and social contacts can adversely impact mental health due to circadian rhythm disturbance. During the COVID-19 pandemic, there are many voices of concern about the increase in suicide rates [6]. Increased number of suicides may be attributable to economic stress, social isolation, limited access to communication, and seasonal factors. However, emotional disturbance due to impaired daily routines and ensuing circadian rhythm disturbance should also be considered. Insufficient exposure to morning sunlight could delay the circadian rhythm, leading to an increased risk of depression and suicide [7]. Even during social distancing, waking up early in the morning and enjoying the sun light or outdoor walks should be encouraged by the concerned authorities for holistic public welfare.

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Conflicts of Interest

The author has no potential conflicts of interest to disclose.

ORCID iD

Heon-Jeong Lee 

<https://orcid.org/0000-0002-9560-2383>

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Corresponding author: Heon-Jeong Lee, MD, PhD, Department of Psychiatry, Korea University College of Medicine, 73 Goryeodae-ro, Seongbuk-gu, Seoul 02841, Korea.

Tel: 82-2-920-6721, Fax: 82-2-929-7679, E-mail: leehjeong@korea.ac.kr

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