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Editorial

Sleep during times of coronavirus: early Chinese experience



The citizens of the world now face the contagion of SARS CoV-2 and 2019 novel coronavirus (COVID-19) that has reached pandemic proportions in just three months. In the last two decades, three viral coronavirus epidemics rapidly presented. In the wake of these events' isolation, anxiety, and depression increased. Pandemics were reported as early as 430 BCE. The Black Death of the 1300s traveled via the Silk Road from Asia to Europe over 20–40 years. Lack of understanding and limited knowledge of public health, as well as cohabitation with rodents doomed millions to death. Fear was rampant [1].

In this issue of *Sleep Medicine*, Zhao et al., expands our knowledge by rapidly collecting data from multiple provinces in China about the subjective sleep experience, disease perceptions, self-esteem and anxiety of 1,630 participants [2]. It is a study of non-diseased individuals rather than front-line workers. The participants completed online, standardized questionnaires from February 18–25, 2020 (about two months into the Chinese epidemic). Subjects were 18–68 years of age and nearly three-quarters had a college education or higher, resulting in high awareness of COVID-19. A total of 36.38% of participants reported poor sleep based on Pittsburgh Sleep Quality Index (PSQI) scores of five or above. Increases in perceived stress were significantly associated with higher anxiety levels and lower sleep quality. The authors highlight that self-esteem moderated the impact of anxiety and perceived stress on sleep quality. Anxiety was higher in those with low levels of self-esteem, while higher levels of self-esteem were associated with better adaptation, less anxiety and better subjective sleep quality.

The authors point out that the number of poor sleepers in the current study was higher than previous Chinese studies - 21.80% in a large rural sample [3] and 24.10% in HIV-infected Chinese adults vs. 19.90% of HIV-uninfected participants [4]. Another large rural sample using a global PSQI score found that 27.44% of participants were poor sleepers [5].

Zhao et al., rightly point out that their study was conducted in China when the pandemic was severe, impacting these educated participants and their rating of sleep quality. Compared to health care professionals that provided care during the COVID-19 epidemic, the rating of sleep quality by PSQI in the community was better at a mean of 4.88 vs. front-line medical workers at 8.58 [6].

Studies of trauma that included sleep disturbance have primarily been on survivors of regional natural disasters or conflicts and its psychological aftermath rather than an ongoing worldwide threat. Exposure to stressors (eg, hurricanes, non-combatant trauma) leads to lower sleep quality, longer sleep latency, increased awareness during the night, and more sleep complaints [7,8]. A 2020 study from China of colorectal cancer patients, a group facing

months of uncertainty, showed anxiety and pain that interacted with insomnia according to the Athens Insomnia Scale, while self-esteem showed protective effects [9].

Zhao et al.'s study highlights how self-esteem mitigates the impact of stress and anxiety on sleep. They measured perceived stress by the degree of unpredictability, uncontrollability, and overload according to the method of Cohen [10]. Rating of higher stress represented a lesser degree of control, contributing to higher anxiety and decreased sleep quality as predicted by Stress and Coping Theory (perceived environmental demands tax resources leading to anxiety and impacting health) [11]. Assessment of self-esteem was by the Chinese version of the Rosenberg Self-Esteem Scale [12]. As noted by others [13], self-esteem is a protective factor to sleep disturbance. Zhao et al., used a bootstrap model of moderated mediation to demonstrate higher anxiety and PSQI scores in the group with low self-esteem, while higher rating of self-esteem lessened anxiety and sleep disturbance under the stress of pandemic.

Zhao et al., have contributed to the understanding of the early impact of SARS CoV-2 and COVID-19 on sleep health. The world sleep community thanks them for their rapid report on the non-diseased population of China. Other studies in China have made similar contributions as well [14,15]. Zhao et al., encourage all nations to consider social interventions to improve adaptation and sleep quality, citing recommendations to address mental health [16].

As the world walks through the pandemic, we pass through our anxiety, moments of helplessness, our sorrow and our grief. We will measure our successful understanding of SARS CoV-2 and COVID-19 not in one article but many. All branches of sleep medicine must contribute. Although it started with emergency medicine and critical care, contributions await from cardiovascular, gastroenterological, immunologic, neurologic, nursing, otolaryngologic, psychiatric, psychologic, pulmonological and other sleep specialties. We will count our progress over years, not months.

Conflict of interest

The ICMJE Uniform Disclosure Form for Potential Conflicts of Interest associated with this article can be viewed by clicking on the following link: <https://doi.org/10.1016/j.sleep.2020.06.013>.

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Available online 11 June 2020