



EDITORIAL

Digital cognitive behavioral therapy for insomnia promotes later health resilience during the coronavirus disease 19 (COVID-19) pandemic

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The 2019 novel coronavirus disease (COVID-19) has created unprecedented global challenges, including significant threats to public health directly related to morbidity and mortality associated with the virus, as well as downstream economic, social, and mental health consequences related to pandemic containment measures (e.g. school and business closures) [1, 2]. Collectively, these challenges serve as potent stressors that can threaten mental and physical health.

Given that sleep disturbances are common sequelae to exposure to stress or trauma, it is perhaps not surprising that media reports and an increasing number of scientific articles have reported a high prevalence of sleep problems, including insomnia-related symptoms, since the global COVID-19 pandemic began [3]. There are many plausible reasons for an increase in sleep disturbances during the pandemic, including increased stress and anxiety, social isolation, and disruptions to daily routines and social rhythms. The article by Cheng et al. [4] published in this issue, entitled “Digital cognitive behavioral therapy for insomnia promotes later health resilience during the coronavirus disease 19 (COVID-19) pandemic” presents a novel perspective on sleep in the context of a pandemic. Rather than focus on sleep disturbance as a correlate and consequence of the pandemic, as many others have reported [5, 6], Cheng et al. [4] examine the impact of pre-pandemic exposure to an evidence-based cognitive behavioral treatment for sleep as a potential protective factor mitigating the impact of COVID-19 on sleep disturbances during the early months of the pandemic.

The study leveraged a sample drawn from a prior randomized controlled trial of digital cognitive behavioral therapy for insomnia (dCBT-I; $N = 102$) versus sleep education control ($N = 106$) which was conducted in 2016/2017 and administered a

survey focused on COVID impact, stress, perceived health, and insomnia symptoms in April 2020. Their results showed that those who previously received dCBT-I reported fewer insomnia symptoms, less general stress and COVID-related cognitive intrusions, less depression, and better global health compared to those who received sleep education. There are several important implications of this study that warrant further inquiry, both in terms of advancing the science and informing public policy related to future pandemic preparedness and resiliency to stress more generally.

We know based on substantial prior research that sleep disturbances are common consequences of stress or trauma [7]. Furthermore, the presence of sleep problems increases the risk for poor psychiatric outcomes, including posttraumatic stress disorder [7, 8], and left untreated, sleep disturbances portend poorer treatment outcomes to even the most effective mental health treatments [9]. However, the current findings go a step further by demonstrating that protecting and promoting sleep may be a critical “stress inoculation” [10] strategy and pathway to resilience in the longer term. Cultural attitudes that have long undermined the importance of sleep could be countered by this novel evidence. Implications of this work also suggest that providing sleep treatment as well as sleep health promotion programs proactively to individuals at high risk for sleep problems, including healthcare workers, first responders, military personnel, and other front-line workers, could be an important strategy moving forward as we consider recovery from the current pandemic as well as future pandemic readiness approaches.

The global COVID-19 pandemic has also laid bare profound existing health and socioeconomic disparities that have only

been exacerbated by the pandemic. As such, it is also notable that this study utilized a dCBT-I intervention, which may facilitate dissemination to otherwise underrepresented groups in clinical sleep medicine trials. As recently reviewed in the American Academy of Sleep Medicine clinical practice guidelines for behavioral and psychological treatments for insomnia [11], cognitive behavioral treatments for insomnia in general (regardless of treatment delivery method) received a “strong” recommendation based on a systematic review of the literature and application of GRADE review criteria. Although the task force concluded that there was insufficient data to suggest the superiority of one delivery method over another (e.g. individual versus online/digital therapy), the promising evidence from this and other trials utilizing digital or telehealth methods [12], as well as the recognized barriers to dissemination of “traditional” in-person CBT-I [11], provides further support for these methods. Testing the efficacy of these interventions and enhancing dissemination efforts for populations that are high risk, but typically underrepresented in sleep treatment studies, including African Americans and American Indian/Alaska Native individuals, and low-income populations is particularly salient, given that these are also the populations who have experienced disproportionate impacts associated with COVID-19 [13].

Although the promise of the vaccine provides a considerable reason for hope, it is clear that the societal consequences of COVID-19, including rising mental health problems and economic strain, may persist for years to come. That said, there are also important opportunities for to change cultural beliefs and attitudes around sleep that have thus far been resistant to change. For example, policy efforts to support healthy sleep, such as the movement to delay high school start times for adolescents (a population at high risk for insufficient sleep and insomnia) [14], are often met with resistance due to concerns about logistical issues, such as bussing, childcare, or sports [15]. Other policies, such as policy efforts to reduce physician duty hours to support healthy sleep, have similarly been met with resistance [16]. However, the current findings that improving sleep can serve as a protective factor, buffering the risks associated with stress exposure among individuals with sleep problems, may lend further support to the argument that policies, at work and at school, should support healthy sleep in vulnerable populations—not only can they improve immediate functioning and health outcomes, but may also support resiliency in the face of future stressors.

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