



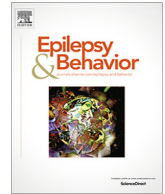
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Letter to the Editor

Causal relationship between stress and sleep quality and the validity of telemedicine during the COVID-19 lockdown



To the Editor

We read with great interest the article by Olivo et al., who investigated whether a change in the quality of life during the COVID-19 pandemic is related to sleep quality [1]. This study included 38 patients with epilepsy who were consulted via telemedicine instead of in-office consultations during the lockdown due to the COVID-19 pandemic. Based on this cross-sectional study with a 100% response rate, the authors indicated that psychological distress during the lockdown affected patients' sleep quality. The authors concluded that telemedicine is a valid monitoring tool. This is a timely and relevant topic in the field of epilepsy worldwide, and we would like to praise the authors' contribution.

However, the study's conclusion raises some concerns. First, the authors indicated that psychological distress affected patients' sleep quality based on the results of this cross-sectional study. This is an overestimation of causality. According to Hill's criteria, a statistically significant association does not indicate a causal relationship between two factors [2]. Specifically, cross-sectional studies cannot determine the temporality of two factors. Therefore, in this study, it is difficult to determine if stress or low sleep quality is a cause or consequence [3]. Based on current knowledge, both causal directions (stress causes low sleep quality and vice versa) are plausible [4]. To determine causality, the authors may want to conduct a follow-up of the outcomes via a longitudinal study. A future study may also address the weak claim that sleep quality decreased during the lockdown. The authors compared sleep quality in different age groups (49.55 ± 16.50, mean ± SD, present study; 31.3 ± 11 mean ± SD; previous study), which raises concern regarding comparability [1,5]. Second, the study results cannot accurately determine the effectiveness of telemedicine. The validity of the results obtained may be distorted because the doctors queried their patients directly by phone. A bias may be introduced as patients are more likely to provide a satisfactory response. To precisely assess patients' perception of teleconsultation, a descriptive questionnaire by mail or an online questionnaire is preferred. We also believe that a control monitoring methodology is needed for comparison with telemedicine monitoring. For example, the authors may wish to include patients who continued with in-office visits during the same period as a control group.

Despite the concerns mentioned above, the authors demonstrated a statistically significant association between changes in the quality of life and sleep quality. The results of this pilot study

provide a good basis for a more comprehensive study. In a future study, the authors may wish to determine the potential causal relationship between changes in the quality of life and sleep quality in patients with epilepsy during the COVID-19 pandemic. If causality is shown, lifestyle interventions to improve sleep quality may help in seizure control. Once again, we would like to commend the authors for their dedicated efforts.

Conflict of interest

No conflicts of interest.

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Abbreviations: COVID-19, Coronavirus disease 2019

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