



EDITORIAL

# Extending the reach of cognitive behavioral therapy for insomnia via telemedicine

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In this issue, Arnedt and colleagues present data from a non-inferiority pilot study examining cognitive behavioral therapy for insomnia (CBTI) delivered via telemedicine compared to face-to-face (in person) delivery [1]. They report that CBTI delivered via telemedicine was not inferior to standard face-to-face CBTI treatment for the primary outcome, insomnia severity, and for secondary outcomes measuring sleep and daytime functioning. Although larger replication studies are needed before definitive conclusions can be drawn, the study highlights a potential path to extend the reach CBTI through telemedicine services.

Demonstrating the efficacy of CBTI provided via telemedicine is particularly important during the current COVID-19 pandemic, as it has propelled many behavioral sleep medicine (BSM) providers to offer telemedicine services. Access to BSM services is particularly important at the present time given the impact of the pandemic associated lockdown on sleep [2]. This transition to provision of telemedicine services by BSM and other health care providers was facilitated in part by a shift, at least transiently, to equivalent reimbursement for telemedicine compared to traditional face-to-face health care services [3]. It is hoped that this study, and future replication studies in sleep and other health care domains, will help make this parity permanent, even after the pandemic ends.

As described by Arnedt and colleagues, there is little prior systematic data on the differential impact of telemedicine vs face-to-face treatment modalities on insomnia outcomes [1]. Thus in addition to a need for larger replication studies, there is a need for extending their work in order to learn more about the efficacy of CBTI delivered via telemedicine in diverse patient populations, including the underserved, and across a broader range of outcome measures. It will also be important to increase our understanding of the role of patient preference

for treatment modality because, in real life, people factor in their preference when they decide which treatment to pursue. The current study randomly assigned patients to treatment modality. In an unpublished analysis of data collected in our recently completed randomized controlled trial of CBT for perinatal insomnia [4], where we allowed women to choose telemedicine or face-to-face delivery, we also found no effect of receiving treatment in the participants' preferred modality (in-person or via telemedicine) on outcome. Larger randomized trials could systematically measure patient preference and examine whether receiving treatment via a preferred modality versus an assigned one will have a differential impact on treatment outcome.

Future research is also needed to answer important questions about wide-scale implementation of telemedicine services. One important area is identification of barriers for patient use of telemedicine services. These may include limited access to, as well as low level of proficiency and comfort in using, videoconferencing technology. Another potential barrier is patient access to a private space during the telemedicine session. While these barriers need to be explored systematically, it is reasonable to expect that the increased availability of technology-based connections for work and social connection, and increased use of telemedicine during the pandemic, will lead to greater acceptability and feasibility of telemedicine for patients who historically would have preferred face-to-face treatment. Indeed, our experience in a large clinical service supports this idea; very few patients referred for CBTI during the pandemic have chosen to defer treatment until face-to-face services are available, and this number has decreased over time.

Large scale replication studies can also address other important implementation issues. One such issue pertains to

attributes of the treatment providers. In the current study, one therapist provided all treatment in both conditions (face-to-face and telemedicine). While this is a methodological strength for a pilot study, it does confer some limitations to the generalizability of the findings. Data from general psychotherapy research suggest that there are moderate effects of the therapist on outcome [5]. By including a large number of clinicians, ideally with a range of experience levels, future large scale pragmatic studies will inform the generalizability of the results to real-world settings. Another implementation issue pertains to the characteristics of the telemedicine platform. Arnedt and colleagues report using a basic video-based platform; it is possible that platforms with higher levels of sophistication (e.g. being able to share screen to display psychoeducational materials and/or to collaboratively examine sleep diaries with the patient) may enhance outcomes.

Lastly, there are important economic questions related to implementation of telemedicine services. These include patient-focused questions about the cost of the treatment itself, as well as overhead costs such as travel, time off work, and cost of substitute caregivers. The current study reports significantly shorter session duration with telemedicine compared to face-to-face treatment, which may reduce the economic cost of treatment through use of billing codes for shorter session durations. It will also be important to systematically evaluate impact of telemedicine on provider efficiency and economics; for example, whether there are differences in rates of rescheduled appointments and no-show or late cancellation appointments between telemedicine and face-to-face treatment. Improvement in provider efficiency is important for economic

reasons and also because it translates to increase patients' access to CBTI.

This pilot study has produced exciting preliminary results about the potential for telemedicine to extend the reach of CBTI by removing some barriers to this effective treatment. It is an important first step that, we hope, will stimulate larger and more definitive replication studies. Among the many unanswered questions we discussed above, we believe that the first priority is to test differential efficacy relative to traditional models of face-to-face delivery across a more diverse patient population, as well as relative to digital CBTI.

*Conflict of interest statement.* None declared.

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