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Online Intervention Program Helps Patients With Insomnia



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July 15, 2009 — Patients with insomnia who completed an online cognitive behavioral program had significant sleep improvements compared with those in a control group who were on a waiting list for treatment, according to new research published in the July issue of the *Archives of General Psychiatry*.

The study found that over the course of 9 weeks, insomnia severity scores among users of the Sleep Healthy Using the Internet (SHUTI) program were cut by more than half, and their sleep efficiency (defined as the ratio of time spent asleep to the time spent in bed) improved by 16%.

"It was a huge improvement and brought people into the normal range, whereas those who didn't take the intervention didn't get this improvement," said Lee M. Ritterband, PhD, from the University of Virginia Health System, in Charlottesville.

The study included 45 patients aged 18 to 65 years who met the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed, text revision (*DSM-IV-TR*) criteria for primary insomnia. They had difficulty initiating sleep or maintaining sleep at least 3 nights of the week and had significant daytime impairment due to insomnia. Subjects were mostly married (68%) women (77%) and had a mean age of almost 45 years. They had experienced sleep difficulties for a mean of 10.59 years.

Participants were randomly assigned to either the Internet intervention (22) or to the control condition (23). Data were available on 44 eligible participants who completed the study.

Animation, Quizzes and Games

The highly interactive Internet intervention uses text, animation, vignettes, quizzes, and games to deliver pertinent information to users. The program includes 3 basic elements:

- Behavioral: Changing behaviors surrounding sleep. For example, going to bed only when sleepy, getting out
 of bed when unable to sleep, curtailing reading and watching television in the bedroom, restricting the
 amount of time spent in bed, avoiding daytime napping, and getting up at the same time every day.
- Educational: Learning to improve sleep hygiene by increasing exercise and avoiding nicotine, caffeine, and alcohol before bed.
- Cognitive: Addressing maladaptive behaviors and dysfunctional thoughts that perpetuate sleep problems.

During pre- and postassessments, all participants completed the 7-item Insomnia Severity Index (ISI). Scores for the ISI range from 0 to 28, with higher scores indicating more severe insomnia.

Sleep Diaries

At the beginning of the study, all subjects completed an online sleep diary that consisted of 10 standard questions on such conditions as the length of time it took to fall asleep and the number and length of night awakenings. Internet subjects were encouraged to also keep sleep diaries during the intervention. After 9 weeks, all participants completed sleep diaries again before being assessed in person.

At the beginning of the study, there was no difference in ISI score between the intervention and control groups (15.73 and 16.27, respectively). At postassessment, the mean ISI scores were 6.59 (95% CI, 4.73 - 8.45) for the Internet group and 15.50 (95% CI, 13.64 - 17.36) for the control group.

Among Internet users, there was a 55% improvement in mean wake-after-sleep-onset time (from 66.74 to 29.90 minutes awake during the night) and a 43% improvement in mean sleep-onset latency (from 31.84 to 18.12 minutes)

The study also found that Internet users experienced a 16% improvement in sleep efficiency (from a mean of 77.3% to 89.3%) while the control group had little change, (Normal sleep efficiency begins at about 85%, said Dr. Ritterband.)

The Internet group maintained their sleep improvement at a 6-month follow-up. "We were ecstatic about that; it was pretty exciting," said Dr. Ritterband.

Ferocious Adherence

The patients in the Internet intervention enjoyed using the online program, commented Dr. Ritterband. "You have to remember that these people had 10 plus years of insomnia, severe insomnia, so they were hungry for something, and they were ferocious in their adherence to do this every day."

There has been a virtual "explosion" of work in the field of Web-based therapy over the past decade, and private companies have already started to market programs to governments and insurers, said Dr. Ritterband. Across the United States, there are online computer-based training programs being developed to manage obesity, pain, depression, and smoking cessation, as well as insomnia.

"For almost any behavioral or mental-health or psychological condition you can think of, I could probably tell you there's an intervention that's being developed and being tested," said Dr. Ritterband.

An online intervention is especially useful in the field of insomnia, as there are only about 115 people in the United States who have expertise in behavioral sleep therapy, and most of the 1100 or so sleep clinics across the country do not focus on the behavioral component of insomnia treatment. "So there is a huge shortage, a huge need for treatment," said Dr. Ritterband.

About 30% of the US population have some symptoms of insomnia, and 10% have chronic insomnia.

Dr. Ritterband said he would like to see the online insomnia program integrated into the US healthcare system, especially at the dawning of the age of electronic medical records. "How fantastic it would be if you could quickly give somebody a Web information prescription, give them access to an Internet intervention as adjunctive care to whatever [other treatment] they're receiving."

The Internet will likely never replace the human therapist, though, he said. "We think there's a place for everybody. What we're trying to do is be able to provide treatment to those who wouldn't otherwise be able to get it."

Asked by *Medscape Psychiatry* to comment on the findings, Donna Arand, PhD, clinical director of the Kettering Sleep Disorder Center, in Dayton, Ohio, said the research has the potential to help manage the near "epidemic" of insomnia across the country. "If this helps even a small percentage of the enormous number of people who have insomnia, that is wonderful," said Dr. Arand, adding that the program is "certainly very cost-effective."

However, she said she had some concerns about whether people in the community who do not have the same supports and close follow-up as did subjects in the study would be as committed to the program.

"The real downfall is that they may become sort of turned off to behavioral treatments, because they might think, 'I tried that and it didn't work,' when in fact they really didn't give it a good opportunity to work, they didn't have the support they needed, and maybe they didn't completely understand or follow all the instructions."

No conflict of interest were reported.

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