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File: ■ Chamomile (*Matricaria recutita* syn. *M. chamomilla*, Asteraceae)
■ Sleep Quality
■ Elderly

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RE: Small Study Shows that Chamomile Extract May Increase Sleep Quality for Older Adults

Adib-Hajbaghery M, Mousavi SN. The effects of chamomile extract on sleep quality among elderly people: A clinical trial. *Complement Ther Med*. December 2017;35:109-114.

As people age, sleep disturbances, including insomnia, become more common, with half of elderly adults suffering from sleep disturbances of some kind. The rate is even higher in nursing homes, where studies have shown that 70% of residents experience sleep disturbances. Since poor sleep can impact both physical and psychological health, improvements in sleep quality can have important benefits for the elderly. While most elderly people use sedative-hypnotic drugs to treat sleep disturbances, these can have side effects that are worse than the symptoms of the disorder itself.

Herbal remedies provide an alternative treatment for sleep disturbances, with chamomile (*Matricaria recutita* syn. *M. chamomilla*, Asteraceae) being a frequently used, well-tolerated sleep aid. In addition to its many other uses, chamomile has traditionally been used to calm agitation, anxiety, and sleep disturbances. Its tranquilizing effects have been attributed to apigenin and other flavonoids that bind benzodiazepine receptors in the brain. Despite its therapeutic effects, there is scant clinical evidence on its effectiveness in treating human sleep disturbances. The purpose of this case study was to evaluate the effects of chamomile on sleep disturbances in elderly adults.

This single-blind randomized controlled trial was conducted in the Kahrizak nursing home in Karaj, Iran, from April to May 2016, funded by a grant from the Kashan University of Medical Sciences (Kashan, Iran). A total of 60 patients were selected from a study population of 195 adults living in the nursing home, age 60 and above. Patients were eligible for the trial if they scored a 5 or higher on the Pittsburgh Sleep Quality Index (PSQI), were not allergic to chamomile or its derivatives, were able to communicate with physicians and researchers, were not currently taking chamomile, were not using anticoagulants, were not dependent on any medications, and were not suffering from a list of defined chronic conditions.

Patients were assigned to a control or treatment group by block randomization, with 30 patients per group. Baseline data were collected for each patient after recruitment to the study and included a questionnaire and the PSQI. The PSQI is a standard 18-item index, which includes the following components: subjective sleep quality; sleep latency; sleep duration; habitual sleep efficiency (total sleep hours ÷ total hours in bed × 100); sleep disturbances; use of sleep medications; and daytime dysfunction. Individual items on the PSQI are scored from 0 to 3, with a total score of 5 or above indicating low sleep quality.

Chamomile extract and wheat (*Triticum aestivum*, Poaceae) flour capsules were given to the treatment and control groups, respectively. The chamomile extract capsules were prepared by the percolation method by first soaking the ground plant in 70% ethanol, extracting and then vacuum-concentrating the material, and finally drying the concentrate using a spray dryer. The dry powder was then put into capsules at a 200-mg dosage. The control group received a 200-mg dose of wheat flour in a capsule identical to the chamomile, except for an identifying code used by the researchers. The capsules were manufactured and coded by Ahura Pharmaceutical Company; Shiraz, Iran.

Patients in both groups received the appropriate 200-mg capsule twice a day for 28 consecutive days. After the initial pre-trial assessment, patients were again assessed for sleep quality using the PSQI 2 weeks into the trial, immediately after completion of the trial, and 2 weeks after completion, for a total of 4 assessments. The assessments were conducted by a physician and nurse who were not blinded to the trial, so that they could monitor any adverse reactions to the chamomile, if they were to occur (none were reported).

Data were analyzed via Chi-square and Fisher's exact tests, as well as independent-sample *t*-test. PSQI score variation was conducted through repeated-measures analysis of variance. All analyses were completed with Statistical Package for the Social Sciences (SPSS) software v13.

Of the 60 patients, 68.3% were female, 66.7% were married, and 60% were illiterate. The mean age of the control group was 70.73 ± 6.44, and the mean age of the treatment group was 69.36 ± 4.99. There were no significant differences between the 2 groups in mean age, gender, educational or marital status, or history of chronic conditions ($P>0.05$ for all). While there was no statistically significant difference in mean PSQI scores between the groups at the start of the trial or at the 2-week assessment ($P=0.639$), those differences were significant at the third ($P=0.007$) and final ($P=0.002$) assessments. Also, there was improvement in sleep quality in the treatment group during the course of the trial, with significant pairwise differences in all ($P=0.001$) but the third and fourth assessments ($P=0.99$). The control group saw no such improvement in sleep quality (P values not given). Finally, there were significant differences between the treatment and control groups in 5 of the PSQI components as follows: subjective sleep quality ($P=0.001$); sleep disturbances ($P=0.001$); daytime dysfunction ($P=0.013$); sleep efficiency ($P=0.001$); and sleep latency ($P=0.008$). In short, sleep quality for the treatment group improved significantly while they were receiving the chamomile extract capsules, and no corresponding improvement was recorded for the control group. These findings are in agreement with other recent research on the use of chamomile to treat sleep disturbances.

The authors acknowledge that the study had limitations—its short duration, it was not double-blind, patients were not required to stop taking any sedative-hypnotic

medications during the trial, and it did not assess individual sleep habits of the patients before the start of the trial. Despite these limitations, the study indicates that chamomile offers a safe and effective treatment for elderly people experiencing sleep disturbances.

—Heather B. Leach, MSc

The American Botanical Council has chosen not to reprint the original article.