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Better Health Through Behavior Change

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Keck Medicine of USC research in collaboration with UCLA demonstrates mindfulness meditation helps older adults with sleep problems, and might impact their brain structure

Philadelphia, PA – Mindfulness-based interventions (MBIs) have been gaining popularity for a wide variety of health issues in recent years, but little research has been done on older adults.

A study led by a Keck Medicine of the University of Southern California (USC) researcher and colleagues at the University of California, Los Angeles (UCLA) demonstrates that training older adults in mindfulness meditation techniques improved the sleep of study participants more than being educated about sleep and sleep habits.

Study results will be presented at a poster session at 6:40 pm ET Thursday, April 24 during the 2014 Society of Behavioral Medicine's Annual Meeting and Scientific Sessions in Philadelphia, Penn.

David S. Black, Ph.D., M.P.H., assistant professor of preventive medicine and director of the BioMind Lab at Keck Medicine of USC, together with his previous research team at UCLA, completed a randomized comparative efficacy trial with 49 older adult community volunteers aged 55-90 with unremitting sleep problems who were not clinically diagnosed with insomnia. Participants were recruited from the urban Los Angeles community and were randomized to receive either six weeks of sleep hygiene education or six weeks of mindfulness meditation training through the Mindful Awareness Practices (MAPs) program developed at UCLA.

Findings showed that sleep quality, insomnia severity, and fatigue, as well as indicators of mental health (including quality of life, depression, mindfulness and well-being) improved more in the MAPs mindfulness meditation group than in the sleep hygiene education group. Participants trained in MAPs showed an estimated 28 percent improvement in overall sleep quality while those trained in sleep hygiene showed only a 9 percent improvement that did not reach statistical significance.

"Mindfulness meditation appears to help older adults remediate some of their sleep problems, and may help to prevent such problems from advancing to a clinical diagnosis of insomnia," said Black, who is principal investigator on the study. "This is an important step forward for secondary prevention efforts, and our findings might have implications for reducing health care costs associated with sleep problems in our aging population."

In the MAPs program condition, participants attended a weekly, two-hour, group-based course in mindfulness meditation over a period of six weeks. Participants engaged in an average of 10 to 30 minutes of mindfulness practice such as mindful sitting meditation, mindful eating, appreciation meditation, friendly-kindness meditation, mindful walking, and mindful movement. Mindfulness practice

was also assigned as homework beginning with 5 minutes daily and advancing to 20 minutes daily at program's end.

Sessions were led by an experienced teacher with over 20 years of mindfulness practice. Participants in the sleep hygiene education condition were taught by a trained health educator. The sleep hygiene sessions matched the MAPs condition for time, attention, demand characteristics, teacher training effects, and social support effects. Active components of the sleep hygiene education course include increasing knowledge of sleep biology, characteristics of healthy and unhealthy sleep, sleep problems, stress biology and stress reduction, relaxation methods for improving sleep, self-monitoring of sleep behavior, and weekly hygiene tips for obtaining better sleep.

Mindfulness meditation trains individuals in the systematic practice of continually attending to moment-by-moment experiences, thoughts, and emotions from an open, non-judgmental perspective. Mindfulness meditation represents a particularly promising non-pharmacological intervention approach for sleep problems that can be readily and affordably delivered in the community setting.

An exploratory analysis also found significant changes in brain anatomy in a sub-sample of 6 older adults aged 58-75 who were included in a neuroimaging protocol. Findings showed significant decreases in the gray matter of the left prefrontal cortex, the right hippocampus, the right thalamus, and the right parietal cortex, as well as a significant increase in the gray matter of the right precuneus. Importantly, the changes in gray matter that were observed were associated with positive changes in mental health (including non-reactivity, observing, rumination, wellbeing, and awareness). The authors note that the decreases in gray matter in some brain regions may indicate that individuals suffering from sleep problems could have stronger activation, and therefore abnormally high gray matter, in specific brain regions, and that mindfulness meditation may normalize existing pathological activation in these brain regions, resulting in a decrease in gray matter.

The presentation is titled, "Mindfulness training versus sleep hygiene for insomnia symptoms in older adults: a randomized comparative efficacy trial". The other contributors are: Gillian A. O'Reilly B.S. (Keck Medicine of USC), Eileen Luders, Ph.D. (Department of Neurology, University of California, Los Angeles), Elizabeth Breen, Ph.D., Richard Olmstead, Ph.D., and Michael Irwin, M.D. (Cousins Center for Psychoneuroimmunology, Semel Institute for Neuroscience & Human Behavior, University of California, Los Angeles).

The authors declare no financial or other conflicts of interest.

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This study was presented during the 2014 Annual Meeting and Scientific Session of the Society of Behavioral Medicine (SBM) from April 23-26, 2014 in Philadelphia, PA. However, it does not reflect the

policies or the opinion of the SBM. This symposium presentation was held on April 24th. Given that this study was presented at a scientific meeting, the data and conclusions reached should be regarded as preliminary, until they are published in a peer-reviewed journal. Funding agencies played no role in this study. There are no conflicts of interest for the investigators.

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