The Menopause Society™

Leading the Conversation

AI Helps to Identify Subjective Cognitive Decline During the Menopause Transition

New study develops and validates a machine learning model that's faster and more affordable than traditional models in identifying who is most at risk for cognitive impairment

CLEVELAND, Ohio (Jan 15, 2025)—Artificial intelligence (AI) is positioned to make a major impact on almost every industry, including healthcare. A new study suggests that machine learning models can more quickly and affordably identify women with severe subjective cognitive decline during the menopause transition, effectively opening the door to better management of cognitive health. Results of the study are published online today in *Menopause*, the journal of The Menopause Society.

Subjective cognitive decline refers to a person's perceived decline in memory or other cognitive functions. Cognitive decline, one of the more common symptoms related to the menopause transition, is especially concerning, because it not only affects a woman's quality of life but can also indicate a higher risk of severe neurodegenerative diseases, such as Alzheimer disease.

Previous evidence suggests a number of risk factors for cognitive decline, including aging, hypertension, obesity, and depression, among others. A challenge is that most current models for cognitive health are centered around dementia, an incurable disease that offers limited opportunities for clinical intervention. Although subjective cognitive decline does not always predict long-term cognitive changes or dementia, a predictive model for cognitive decline and related factors could allow for early intervention to protect cognitive health.

Existing testing for cognitive performance is largely based on models typically incorporating various laboratory indicators such as blood glucose, blood lipids, and brain imaging. The complexity and high cost of these models often make them impractical to implement in a clinical setting. In comparison, questionnaire-based models offer a simpler and more cost-effective alternative. These models rely on a number of independent variables, including sociodemographic, work-related, menstrual-related, lifestyle-related, and mental health-related factors.

Machine learning has shown tremendous potential in the field of cognitive health in recent years. By mining patterns and trends from large datasets, it can construct accurate, reliable models and automate the handling of complex variable relationships. In this latest study involving more than 1,200 women undergoing the menopause transition, researchers were able to develop and validate a machine learning model for identifying women experiencing severe subjective cognitive decline, along with associated factors.

These findings provide a novel guidance for interventions designed to preserve cognitive health in women undergoing the menopause transition. Additional research is needed to validate these results and identify additional potential influencing factors.

Study results are published in the article "Using machine learning models to identify severe subjective cognitive decline and related factors in nurses during the menopause transition: a pilot study."

"This study highlights how the use of machine learning can be employed to identify women experiencing severe subjective cognitive decline during the menopause transition and potential associated factors. Early identification of high-risk persons may allow for targeted interventions to protect cognitive health. Future studies involving objective measures of cognition and longitudinal follow-up are crucial to better understanding these associations," says Dr. Stephanie Faubion, medical director for The Menopause Society.

For more information about menopause and healthy aging, visit www.menopause.org.

The Menopause Society (formerly The North American Menopause Society) is dedicated to empowering healthcare professionals and providing them with the tools and resources to improve the health of women during the menopause transition and beyond. As the leading authority on menopause since 1989, the nonprofit, multidisciplinary organization serves as the independent, evidence-based resource for healthcare professionals, researchers, the media, and the public and leads the conversation about improving women's health and healthcare experiences. To learn more, visit menopause.org.