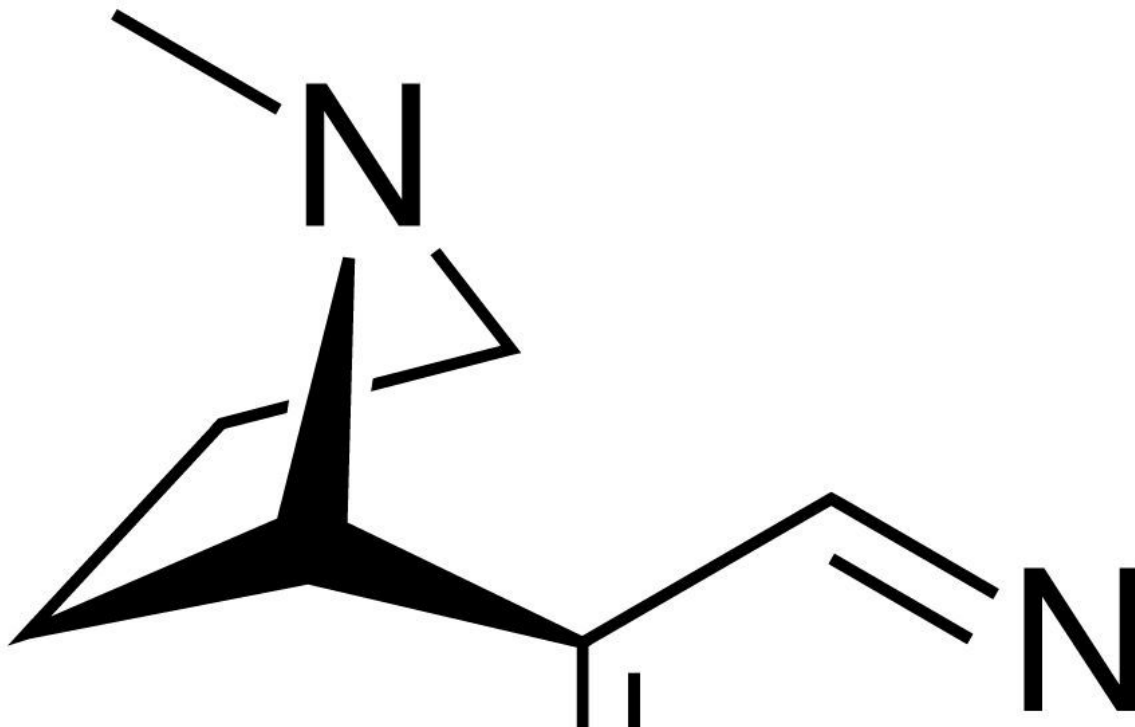


# Nicotine patch shows promise in treating late-life depression

September 7 2018, by Liz Entman

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Nicotine, alternate molecular skeletal 2D rendering showing the 3D conformation of its ring at lowest energy in actual space. Credit: Public Domain

A Vanderbilt University Medical Center pilot study of treating late-life depression in nonsmokers with transdermal nicotine (nicotine patch) has yielded some promising results, but the study's author cautions that more study is needed.

Late-life depression—depression that occurs in adults 60 years or older—is characterized by poor response to [antidepressant medications](#) and often memory issues. About half of those treated for late-life depression fail to respond to initial treatments.

"We know when we treat depression that our medications can be very helpful, but clearly they don't always work as well as we want—there are people who don't respond well or don't respond completely to their current medication, so there's a need for new effective treatments that work through new and different mechanisms," said Warren Taylor, MD, MHSc, professor of Psychiatry and Behavioral Sciences and the James G. Blakemore Professor of Psychiatry.

Although there have been no published studies in geriatric populations, several small trials in nonsmokers with midlife major depressive disorder report that nicotine reduces depressive symptom severity.

"Depression, especially in older adults, can be characterized by memory problems—where their memory isn't as good as people the same age and the same education who are not depressed," Taylor said.

"When we treat the depression, their memory may get better, but it often doesn't improve to where it should be. We consider that part of the illness, and part of the residual effects of depression. In some cases, even with effective antidepressant treatment, memory may continue to worsen and progress to Alzheimer's or another type of dementia. We wanted a treatment that could help both depression and memory function."

Taylor works closely with Paul Newhouse, MD, professor of Psychiatry and Behavioral Sciences and the Jim Turner Professor of Cognitive Disorders, who studies [nicotine patches](#) and their effect on [mild cognitive impairment](#). Newhouse is a co-author on the study, "Transdermal Nicotine for the Treatment of Mood and Cognitive

Symptoms in Nonsmokers with Late-Life Depression."

The 12-week study, published in last week's *Journal of Clinical Psychiatry*, was conducted between November 2015 and August 2017 and looked at 15 people, 60 and older, suffering from a [major depressive disorder](#). The average age was 65. All participants received the nicotine patch. There were no placebo patches used in the study.

Some study participants were already on antidepressant medications, but not doing well. Some were not currently taking antidepressants.

The nicotine patch was added to what they were already taking, or used alone if they were not taking an antidepressant medication.

The patches were applied daily and titrated in a rigid dose escalation strategy to a maximum dose of 21.0 mg. The primary mood outcome was measured every three weeks. The participants also had their cognitive outcome measured with a neuropsychological test battery.

"The study was designed to see whether there's a signal to encourage us going forward in a bigger, more definitive study," Taylor said.

"We don't want to expose a lot of people to something that has no benefit, unless we had preliminary data to suggest this approach could be effective," he said.

The study measured remission—the state where the depression is almost gone and the person is functioning well. Fifty percent of the participants hit remission, and more than 80 percent had some good clinical response, even if they didn't reach remission.

"As a whole, almost everyone showed improvement in mood. We observed improvement regardless of whether the [patch](#) was added to an

antidepressant or used alone," Taylor said.

"However, memory improvements were less clear," he said. "We saw some change in isolated test measures, but not as dramatic a change as we saw with mood."

Taylor said the group of researchers who worked on the pilot study is currently investigating federal sources to help support further studies.

"Our preliminary results are encouraging, certainly not definitive, but encouraging," Taylor said.

"We're interested not only in the clinical response, but also trying to understand the biology of depression, the mechanism of what's happening inside the brain during depression."

Taylor warns that people with [depression](#) shouldn't start self-medicating with cigarettes or [nicotine](#) patches.

"The patches are commercially available, but there are a lot of questions. We need to see if they're a really good treatment, if they help people in the long-term, and what are the risks we don't know about. We think that patches may be safer than cigarettes, but we don't know what happens when nonsmokers use them long-term. And that's going to take a while.

"This could be a medication option for those who don't respond well to the first line of antidepressant medications," he said. It might be an important treatment option when combined with other medications. But there's a lot of work to be done before we get there."

**More information:** Jason A. Gandelman et al. Transdermal Nicotine for the Treatment of Mood and Cognitive Symptoms in Nonsmokers With Late-Life Depression, *The Journal of Clinical Psychiatry* (2018).

[DOI: 10.4088/JCP.18m12137](https://doi.org/10.4088/JCP.18m12137)

Provided by Vanderbilt University

Citation: Nicotine patch shows promise in treating late-life depression (2018, September 7)  
retrieved 6 May 2024 from

<https://medicalxpress.com/news/2018-09-nicotine-patch-late-life-depression.html>

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