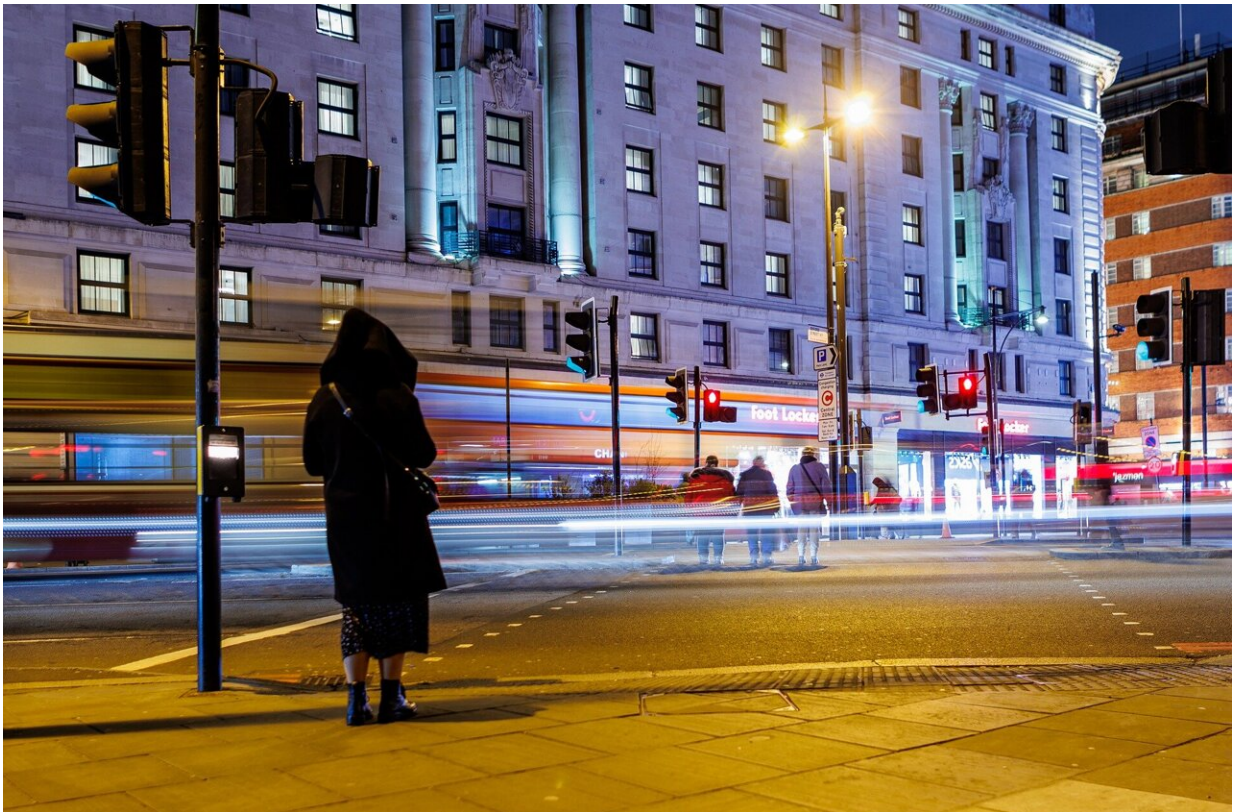


Excessive light pollution may increase risk of Alzheimer's, especially in younger people

September 6 2024



Credit: Pixabay/CC0 Public Domain

In some places around the globe, the lights never go off. Streetlights, roadway lighting, and illuminated signs can deter crime, make roads safer, and enhance landscaping. Undisrupted light, however, comes with

ecological, behavioral, and health consequences.

In the US, some states have legislation in place to reduce [light pollution](#); however, levels of light at night remain high in many parts of the country. Now, researchers there have investigated correlations between outside nightly light pollution and Alzheimer's disease (AD).

"We show that in the US there is a [positive association](#) between AD prevalence and exposure to light at night, particularly in those under the age of 65," said the first author of the study, Dr. Robin Voigt-Zuwala, an associate professor at Rush University Medical Center. "Nightly light pollution—a modifiable environmental factor—may be an important risk factor for AD."

The work [appears](#) in *Frontiers in Neuroscience*.

High intensity, high risk

The researchers studied [light pollution maps](#) of the lower 48 US states and incorporated medical data about variables known or believed to be [risk factors](#) for AD in their analysis. They generated nighttime intensity data for every state and divided them into five groups, from lowest to highest nighttime light intensity.

Their results showed that for people aged 65 and older, AD prevalence was more strongly correlated with nightly light pollution than some other disease factors, including alcohol abuse, chronic kidney disease, depression, and obesity. Other risk factors, like diabetes, [high blood pressure](#), and stroke were more strongly associated with AD than light pollution.

For people aged under 65, however, the researchers found that higher nighttime light intensity was associated with a greater AD prevalence

than any other risk factor examined in the study. This could suggest that younger people may be particularly sensitive to the effects of light exposure at night, the researchers said.

It is unclear why younger people could be more vulnerable, but it could be due to individual differences in light sensitivity. "Certain genotypes, which influence early-onset AD, impact the response to biological stressors which could account for increased vulnerability to the effects of nighttime light exposure," Voigt-Zuwala explained. "Additionally, [younger people](#) are more likely to live in [urban areas](#) and have lifestyles that may increase exposure to light at night."

Curtains and masks

The researchers hope that their findings can help educate people about the potential risks of light at night. "Awareness of the association should empower people—particularly those with risk factors for AD—to make easy lifestyle changes," said Voigt-Zuwala. "Easy to implement changes include using blackout curtains or sleeping with eye masks. This is useful especially for those living in areas with high light pollution."

Furthermore, light exposure inside the home could be as important as light exposure from the outside. While the researchers did not examine the effects of inside light in the present study, they said that [blue light](#) has the greatest impact on sleep, and using blue light filters, swapping to warm light, and installing dimmers in the home could effectively reduce light exposure.

The researchers pointed out that their results are based on a subset of the US population, and that people may not be living in areas with high light pollution all their lives—both could impact individual outcomes. They also said that further research is needed to better understand how light at night influences AD.

More information: Robin M. Voigt et al, Outdoor Nighttime Light Exposure (Light Pollution) is Associated with Alzheimer's Disease, *Frontiers in Neuroscience* (2024). [DOI: 10.3389/fnins.2024.1378498](https://doi.org/10.3389/fnins.2024.1378498)

Provided by Frontiers

Citation: Excessive light pollution may increase risk of Alzheimer's, especially in younger people (2024, September 6) retrieved 6 September 2024 from <https://medicalxpress.com/news/2024-09-excessive-pollution-alzheimer-younger-people.html>

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