



News

Outdoor light at night linked with increased breast cancer risk in women



For immediate release: Thursday, August 17, 2017

Boston, MA – Women who live in areas with higher levels of outdoor light at night may be at higher risk for [breast cancer](#) than those living in areas with lower levels, according to a large long-term study from Harvard T.H. Chan School of Public Health. The link was stronger among women who worked night shifts.

The study was published online August 17, 2017 in *Environmental Health Perspectives*.

“In our modern industrialized society, artificial lighting is nearly ubiquitous. Our results suggest that this widespread exposure to outdoor lights during nighttime hours could represent a novel risk factor for breast cancer,” said lead author Peter James, assistant professor at [Harvard Medical School](#)’s Department of Population Medicine at [Harvard Pilgrim Health Care Institute](#), who did the work while a research fellow in the Departments of [Epidemiology](#) and [Environmental Health](#) at Harvard Chan School.

Previous studies have suggested that exposure to light at night may lead to decreased levels of the hormone melatonin, which can disrupt circadian rhythms—our internal “clocks” that govern sleepiness and alertness—and, in turn, lead to increased breast cancer risk.

The new study, the most comprehensive to date to examine possible links between outdoor light at night and breast cancer, looked at data from nearly 110,000 women enrolled in the [Nurses’ Health Study II](#) from 1989–2013. The researchers linked data from satellite images of Earth taken at nighttime to residential addresses for each study participant, and also considered the influence of night shift work. The study also factored in detailed information on a variety of health and socioeconomic factors among participants.

Women exposed to the highest levels of outdoor light at night—those in the top fifth—had an estimated 14% increased risk of breast cancer during the study period, as compared with women in the bottom fifth of exposure, the researchers found. As levels of outdoor light at night increased, so did breast cancer rates.

The association between outdoor light at night and breast cancer was found only among women who were premenopausal and those who were current or past smokers. In addition, the link was stronger among women who worked night shifts, suggesting that exposure to light at night and night shift work contribute jointly to breast cancer risk, possibly through mechanisms involving circadian disruption. The authors acknowledged that further work is required to confirm the study findings and clarify potential mechanisms.

Other Harvard Chan faculty study authors included [Jaime Hart](#), [Eva Schernhammer](#), [Rulla Tamimi](#), and senior author [Francine Laden](#).

Support for the study came from the Harvard NHLBI Cardiovascular Epidemiology Training Grant T32 HL 098048, NIH National Cancer Institute Grant K99 CA201542, NIH Grant UM1 CA176726, and a grant from the Susan G. Komen for the Cure organization (IIR13264020).

“Outdoor Light at Night and Breast Cancer Incidence in the Nurses’ Health Study II,” Peter James, Kimberly A. Bertrand, Jaime E. Hart, Eva Schernhammer, Rulla M. Tamimi, Francine Laden, *Environmental Health Perspectives*, August 17, 2017, doi: 10.1289/EHP935

For more information:

Marge Dwyer

617.432.8416

mhdwyer@hsph.harvard.edu

photo: iStock

Visit the Harvard Chan School website for the [latest news](#), [press releases](#), and [multimedia offerings](#).

###

[Harvard T.H. Chan School of Public Health](#) brings together dedicated experts from many disciplines to educate new generations of global health leaders and produce powerful ideas that improve the lives and health of people everywhere. As a community of leading scientists, educators, and students, we work together to take innovative ideas from the laboratory to people’s lives—not only making scientific breakthroughs, but also working to change individual behaviors, public policies, and health care practices. Each year, more than 400 faculty members at Harvard Chan School teach 1,000-plus full-time students from around the world and train thousands more through online and executive education courses. Founded in 1913 as the Harvard-MIT School of Health Officers, the School is recognized as America’s oldest professional training program in public health.

Share this: [Facebook](#) [Twitter](#) [LinkedIn](#) [Reddit](#)

Copyright © 2023 The President and Fellows of Harvard College