

# Female night shift workers may have increased risk of common cancers

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Night shift work was associated with women having an increased risk of breast, skin, and gastrointestinal cancer, according to a meta-analysis.

The study was published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research, by Xuelei Ma, PhD, oncologist at State Key Laboratory of Biotherapy and Cancer Center, West China Medical Center of Sichuan University, Chengdu, China

Ma explained that because [breast](#) cancer is the most diagnosed cancer among [women](#) worldwide, most previous meta-analyses have focused on understanding the association between female [night shift workers](#) and breast cancer risk, but the conclusions have been inconsistent. To build upon previous studies, Ma and colleagues analyzed whether long-term [night](#) shift [work](#) in women was associated with risk for nearly a dozen types of cancer.

Ma and colleagues performed a meta-analysis using data from 61 articles comprising 114,628 cancer cases and 3,909,152 participants from North America, Europe, Australia, and Asia. The articles consisted of 26 cohort studies, 24 case-control studies, and 11 nested case-control studies. These studies were analyzed for an association between long-term night shift work and risk of 11 types of cancer. A further analysis was conducted, which looked specifically at long-term night shift work and risk of six types of cancer among female nurses.

Overall, long-term night shift work among women increased the risk of cancer by 19 percent. When analyzing specific cancers, the researchers found that this population had an increased risk of skin (41 percent), breast (32 percent), and [gastrointestinal cancer](#) (18 percent) compared with women who did not perform long-term night shift work. After stratifying the participants by location, Ma found that an increased risk of breast cancer was only found among female night shift workers in North America and Europe.

"We were surprised to see the association between night shift work and [breast cancer risk](#) only among women in North America and Europe," said Ma. "It is possible that women in these locations have higher sex hormone levels, which have been positively associated with hormone-related cancers such as breast cancer."

Among female nurses alone, those who worked the night shift had an increased risk of breast (58 percent), gastrointestinal (35 percent), and lung cancer (28 percent) compared with those that did not work night shifts. Of all the occupations analyzed, nurses had the highest risk of developing breast cancer if they worked the night shift.

"Nurses that worked the night shift were of a medical background and may have been more likely to undergo screening examinations," noted Ma. "Another possible explanation for the increased cancer risk in this population may relate to the job requirements of night shift nursing, such as more intensive shifts."

The researchers also performed a dose-response meta-analysis among breast cancer studies that involved three or more levels of exposure. They found that the risk of [breast cancer](#) increased by 3.3 percent for every five years of night shift work.

"By systematically integrating a multitude of previous data, we found

that night shift work was positively associated with several common cancers in women," said Ma. "The results of this research suggest the need for health protection programs for long-term female night shift workers.

"Our study indicates that night shift work serves as a risk factor for common cancers in women," said Ma. "These results might help establish and implement effective measures to protect female night shifters. Long-term night shift workers should have regular physical examinations and [cancer](#) screenings.

"Given the expanding prevalence of shift work worldwide and the heavy public burden of cancers, we initiated this study to draw public attention to this issue so that more large cohort studies will be conducted to confirm these associations," he added.

A limitation of this work is a lack of consistency between studies regarding the definition of "long-term" [night shift](#) work, with definitions including "working during the night" and "working at least three nights per month." Additional limitations include significant between-study heterogeneity and publication bias.

Provided by American Association for Cancer Research

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