

# New study finds doctors prescribe fewer painkillers during night shifts than during the day

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Pain management is one of the biggest challenges of the modern healthcare system. Almost 60% of U.S. adults report having experienced pain in the past three months, and pain is one of the main reasons adults seek medical care. Adequate pain management is critical for patient health and well-being. A new study published today in *The Proceedings of the National Academy of Sciences (PNAS)*, has found that physicians prescribed less pain medication during night shifts than during the day.

The research was conducted by a multidisciplinary team led by Professor Shoham Choshen-Hillel from the Hebrew University of Jerusalem (HU)'s School of Business Administration and Federmann Center for the Study of Rationality, HU Psychology Department's Dr. Anat Perry, and Dr. Alex Gileles-Hillel from Hadassah Medical Center and HU.

In the first part of the study, 67 doctors were given empathy assessment tasks in the morning and

asked to respond to simulated patient scenarios. These doctors were either at the end of a 26-hour shift or just beginning their workday. The study found that doctors who had recently completed a night shift showed less empathy for patient's [pain](#). For example, these [physicians](#) exhibited decreased emotional responses to pictures of people in pain and consistently scored their patients low on pain assessment charts.

In the second part of the study, the researchers looked at actual medical decisions made by emergency room doctors in the United States and Israel. In all, they analyzed 13,482 discharge letters for patients who came to the hospital in 2013-2020 with a chief complaint of pain (headache, back pain, etc.). Across all data sets, physicians were 20-30% less likely to prescribe an analgesic during [night shifts](#) (compared to daytime shifts) and prescribed fewer painkillers than were generally recommended by the World Health Organization. "They're tired and therefore they're less empathic to patients' pain. When we looked at ER doctors' discharge papers, we found that they prescribed fewer [painkillers](#)," Choshen-Hillel explained.

This bias remained significant even after adjusting for patients' reported level of pain, patients' and physicians' demographics, types of complaints, and emergency department characteristics. "Our takeaway is that night shift work is an important and previously unrecognized source of bias in pain management, likely stemming from impaired perception of pain. The researchers explain that even medical experts, who strive to provide the best care for their patients, are susceptible to the effects of a night shift," Perry noted.

Looking ahead, the researchers suggest implementing more structured pain management guidelines in hospitals. Another important

implication relates to physician work structure, and the need to improve physicians' working schedules. "Our findings may have implications for other workplaces that involve shift work and empathic decision-making, including crisis centers, first responders, and the military. In fact, these results should probably matter to all people who are sleep-deprived," added Gileles-Hillel.

**More information:** Physicians prescribe fewer analgesics during night shifts than day shifts, *Proceedings of the National Academy of Sciences* (2022). [DOI: 10.1073/pnas.2200047119](https://doi.org/10.1073/pnas.2200047119).

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