

Caution needed when drawing links between improving symptoms and unproven remedies, study warns

September 9 2024



Credit: Unsplash/CC0 Public Domain

People tend to continue with unproven treatments even if there's no evidence to suggest an initial marginal improvement in symptoms is

anything more than a potential coincidence, a new study has found.

"I've noticed many of my patients take unnecessary vitamins, pills or alternative remedies with little evidence to inform their choice, leading to a lot of distraction, wishful thinking and wasted money," says senior study author Donald Redelmeier, a staff internist and senior scientist at Sunnybrook Health Sciences Center, and professor in the department of medicine in the University of Toronto's Temerty Faculty of Medicine.

"Perhaps even more concerning is a false belief that leads to a missed diagnosis that later becomes incurable."

The study, [published](#) in the journal *JAMA Network Open*, explores "post-hoc bias," a tendency in reasoning that causes many patients to continue taking dubious or unreliable treatments. The bias encourages a popular misconception: that because one action preceded another later event, the first must have caused the second since it occurred in sequence.

But [medical science](#), the researchers note, stresses that the order of two events does not prove a cause-and-effect, since coincidences are frequent. The implication for medical care is that a patient who improved after a treatment is not necessarily a patient who improved because of the treatment.

Instead, other potential explanations include withdrawal from an adverse activity, added rest or the body's own healing powers.

To test bias across a variety of clinical cases, the researchers ran multiple experiments using hypothetical clinical scenarios administered by a randomized survey of pharmacists and members of the community.

The scenarios described a patient with fatigue or another vague symptom who feels a bit better after trying a vitamin, shampoo, sugar pill or other

treatment.

"We found that most respondents suggested continuing the treatment indefinitely even though the change in symptoms might be pure random chance," says Redelmeier, who is also affiliated ICES and the Institute for Health Policy, Management and Evaluation in U of T's Dalla Lana School of Public Health.

"The post-hoc bias can play tricks on patients that can eventually lead to serious disappointments—and for health-care workers, it can ultimately lead to shortfalls in care."

While attributing an initial improvement in—or lack of—symptoms to a [treatment](#) is a quick and intuitive approach, the researchers say the study reinforces the need for both patients and clinicians to be cautious when drawing conclusions.

"An awareness of post-hoc [bias](#) will not make it disappear, however we suggest patients and clinicians need to think twice and stay mindful of alternative explanations."

More information: Donald A. Redelmeier et al, Post Hoc Bias in Treatment Decisions, *JAMA Network Open* (2024). [DOI: 10.1001/jamanetworkopen.2024.31123](#)

Provided by University of Toronto

Citation: Caution needed when drawing links between improving symptoms and unproven remedies, study warns (2024, September 9) retrieved 9 September 2024 from <https://medicalxpress.com/news/2024-09-caution-links-symptoms-unproven-remedies.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.