

Teaching Current Directions in Psychological Science

C. Nathan DeWall and David G. Myers

C. Nathan DeWall, University of Kentucky, and renowned textbook author and APS Fellow David G. Myers, Hope College, have teamed up to create a series of Observer columns aimed at integrating cutting-edge psychological science into the classroom. Each column will offer advice and how-to guidance about teaching a particular area of research or topic in psychological science that has been the focus of an article in the APS journal Current Directions in Psychological Science. Current Directions is a peer-reviewed bi-monthly journal featuring reviews by leading experts covering all of scientific psychology and its applications, and allowing readers to stay apprised of important developments across subfields beyond their areas of expertise. Its articles are written to be accessible to non-experts, making them ideally suited for use in the classroom.

How Psychological Science Can Support Smarter Medical Decisions

by David G. Myers

[Arkes, H. R. \(2013\). The consequences of the hindsight bias in medical decision making. *Current Directions in Psychological Science*, 22, 356–360.](#)

[Garcia-Retamero, R., & Cokely, E. T. \(2013\). Communicating health risks with visual aids. *Current Directions in Psychological Science*, 22, 392–399.](#)

How can psychological science teach critical thinking and contribute to an educated public? Mindful that our students will enter varied vocations, that question animates us teachers of introductory psychology. Increasingly, our students will be aspiring to the health professions. Effective 2015, the MCAT (Medical College Admission Test) will devote 25 percent of its questions to the “Psychological, Social, and Biological Foundations of Behavior,” with most of those questions coming from the psychological science that’s taught in introductory psychology. For premed students, introductory psychology is becoming an implicit requirement. Happily, we have much to offer these students, and to justify psychology’s new MCAT status.

Doing smart science. First, we teach research principles that apply equally to medical research. One of us recently attended a meeting that introduced the National Institutes of Health’s (NIH) new effort to enhance “the reproducibility and transparency of research findings.” NIH’s initiative is prompted by the realization that two-thirds of medical research findings can’t be replicated. Proposed solutions include not only “supporting replication studies” and improved “reporting of methodology,” but also *introducing more training on experimental design*. Enter psychological science: We teach our students not only the results of our game, but also how it is well-played.

Behavioral medicine. How do stress and behavior influence our vulnerability to heart disease and immune suppression? Can stress-reduction techniques (such as meditation) and lifestyle modification (such as aerobic exercise and sleep management) enhance health and well-being? How do personality traits and social support predict health and longevity? Answers to such questions are among health psychology’s signature contributions to behavioral medicine.

Making smart, well-reasoned medical decisions. Two new *Current Directions in Psychological Science* articles — by APS Fellow Hal Arkes on hindsight biases in real medical decisions, and

by Rocio Garcia-Retamero and Edward Cokely on harnessing visual aids to better communicate health risks — beautifully illustrate psychology’s contribution to informed medical decision-making:

The hindsight bias (aka the I-knew-it-all-along phenomenon) is a great starting point for the teaching of psychological science. As a powerful and memorable demonstration, hand out a simple question in two forms on alternating sheets. One explains:

Social psychologists have found that, whether choosing friends or falling in love, we are most attracted to people whose traits are different from our own. There seems to be wisdom in the old saying “Opposites attract.”

The other reports the opposite:

Social psychologists have found that, whether choosing friends or falling in love, we are most attracted to people whose traits are similar to our own. There seems to be wisdom in the old saying “Birds of a feather flock together.”

Invite students to “In a sentence or two, offer a possible explanation for this result.” Finally, ask them, “Do you find the result __ surprising or __ not surprising?”

Having read and explained the result, virtually all — by show of hands — will find it “not surprising”...whereupon, invite them to compare their question with one of the students sitting beside them (and wait a few seconds for the uproar to subside). Invariably, students want to know which is correct. When explaining that similarity predicts attraction, remind those who “knew it” not to be too smug, “because we have just demonstrated that had we given you the opposite finding you would have found *that* unsurprising.”

In real life, as Arkes persuasively shows, hindsight bias matters. Because outcomes seem as if they should have been foreseeable, we are more likely to blame decision-makers for what are in retrospect “obvious” bad choices than to praise them for good choices, which also seem “obvious.” In one of his studies, Arkes and his colleagues found that physicians who are told both a patient’s symptoms and the cause of death (as determined by autopsy) sometimes wonder how an incorrect diagnosis could have been made. Other physicians, given only the symptoms, find the diagnosis not nearly so obvious (Dawson & others, 1988).

Other studies — which could easily be replicated in class or as class lab activities (with students surveying their friends) — inform people that a patient has committed suicide or acted violently. This inclines them to think that a therapist should have been able to see what are, in retrospect, obvious warning signs — though the signs are not obvious to those ignorant of the outcome (Goggin & Range, 1985; LaBine & LaBine, 1996). Students might be asked to ponder: Would juries be slower to assume malpractice if they were forced to take a foresight rather than a hindsight perspective?

Making information vivid. Arkes notes that to improve medical decisions, “patients and journalists must also improve their understanding of health statistics and medical data.” Enter Garcia-Retamero and Cokely, who offer data and practical suggestions for health professionals who must communicate with people with varied statistical literacy. To communicate information, it helps — sometimes dramatically so — to present information visually. Thus, if told that five of 80 people died when receiving a treatment, while 80 of 800 died without it, people often focus on the number of deaths (ignoring the denominator). But if shown the result visually, they get it:

Indeed, multiple national samples confirm that “well-designed visual aids can be especially useful for vulnerable people who typically have problems understanding information about health risks.” For a self-assessment of one’s risk literacy, Garcia-Retamero and Cokely point students to www.RiskLiteracy.org.

Framing. As William James Fellows Amos Tversky and Daniel Kahneman (1981) showed in one of their seminal behavioral economics papers, how an issue is posed can dramatically affect decisions, even medical decisions. Thus doctors have been found more likely to recommend an operation with a 93 percent survival rate than a 7 percent mortality rate (McNeil, Pauker, & Tversky, 1988). And nine in 10 collegians rate a condom as effective if it has a “95 percent success rate” in stopping HIV transmission; but only four in 10 rate it effective, given a “5 percent failure rate” (Linville, Fischer, & Fischhoff, 1992).

Framing lends itself to a simple class demonstration. Hand out alternating sheets, with either:

Dr. Jones tells her patient, John, that 10 percent of people die while undergoing surgery to relieve the chronic abdominal pain he suffers. John seeks your advice: Should he have the surgery? Yes or No?

Dr. Jones tells her patient, John, that 90 percent of people survive surgery to relieve the chronic abdominal pain he suffers. John seeks your advice: Should he have the surgery? Yes or No?

A visual display of information eliminates framing effects, note Garcia-Retamero and Cokely. Nevertheless, people who understand the power of framing can use it to influence others; Cynthia Crossen (1993) tells of a young monk who found himself rebuffed when he asked if he could smoke while he prayed. “Ask a different question,” advised an understanding friend. “Ask if you can pray while you smoke.”

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