

The Growing Health Literacy Gap and Graduate Medical Education

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I'm on the treadmill at the local YMCA, watching a "family" movie that breaks to the following commercials:

- "3 games for the price of 1!" —an ultraviolent video game maker;
- "Get a large pie for the price of a small pie!" —a pizza restaurant;
- "In just 60 seconds you've got snack-defying, satisfying pizza roll!";
- "Once you've seen her story, you have 7 days to live!" —a trailer for a violent movie;
- "I've got the hots for what's in the box with dominos!" —more pizza; and
- "Talcum powder alert! If you used X's baby powder before developing ovarian cancer call 1-800- . . . you could win \$72 million dollars!"

With breathless delivery, these ads flash by in 30 seconds or less. From these television (TV) ads, one would surmise that Americans are consumed by hunger, violence, lawsuits—as well as cars and car insurance. Wait . . . Americans *are* suffering from epidemics in obesity and associated diseases, gun and other violence, and misconceptions about health, according to reputable scientific groups.¹⁻³ TV ads reflect US society and are a source of information for some individuals. However, studies show that the Internet has surpassed TV as a source of health information, except for older Americans and individuals living in rural areas.⁴

The accuracy of TV ads and Internet information varies widely, which is concerning as some Americans have a long history of preferring disproven theories over science.⁵ Individuals in the current administration support further study of the association between autism and childhood vaccinations, despite overwhelming scientific evidence of no association.⁶ According to surveys by the National Science Foundation (NSF), 1 in 4 Americans believe that the sun revolves around the earth and decreasing numbers believe that "astrology is not at all scientific."⁷ About

half of respondents understand that antibiotics are ineffective against viruses; less than half can explain the reasoning behind a scientific approach or use of a control group.⁷

The NSF and other national organizations have been surveying Americans for many years. They have concluded that Americans' science skills are declining.^{8,9} In addition, concerted efforts by corporate interests, most infamously involving "Big Tobacco" and more recently the soft drink industry, have assiduously sown seeds of doubt about the credibility of scientific reports, with the frequent mantra of "we need more research."¹⁰

Let's take a step back and ask: what is meant by health literacy? It is defined by the US Department of Health and Human Services and the Institute of Medicine as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions."¹¹ The National Center for Education Statistics operationalized this definition by creating health literacy tasks. In 2003, the organization asked 19 000 US adults to complete these tasks, in follow-up to a prior 1992 study. The tasks related to 3 areas of health care information—clinical, prevention, and navigation of the health system—and were based on questions, written materials, and written answers (not multiple-choice questions) via face-to-face interviews in the participant's home.

These tasks involved dealing with common medical occurrences, such as interpreting medical instructions, and were rated by level of performance. Approximately 12% of adults demonstrated proficiency, with 53% at intermediate, 22% at basic, and 14% below basic health literacy.¹¹ An increased educational background was associated with health literacy, better self-reported health, and less reliance on TV or radio as sources of health information.¹¹ There is substantial evidence that lower health literacy is associated with worse health outcomes, such as more hospitalizations, greater amount of emergency care, decreased mammography screening and influenza vaccination, and worse overall health and increased mortality in older persons.¹²

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TABLE

Americans' Agreement With Conspiracy Theories¹³

Medical Conspiracy	Agree, %
The US Food and Drug Administration is deliberately preventing the public from getting natural cures from cancer and other diseases because of pressure from drug companies.	37
Health officials know that cell phones cause cancer, but are doing nothing to stop it because large corporations won't let them.	20
Doctors and the government still want to vaccinate children, even though they know these vaccines cause autism and other psychological disorders.	20
The CIA deliberately infected large numbers of African Americans with HIV under the guise of a hepatitis inoculation program.	12
The global dissemination of genetically modified foods by Monsanto Inc is part of a secret program, called Agenda 21, launched by the Rockefeller and Ford foundations to shrink the world's population.	12
Public water fluoridation is really just a secret way for chemical companies to dump the dangerous byproducts of phosphate mines into the environment.	12

Abbreviations: CIA, Central Intelligence Agency; HIV, human immunodeficiency virus.

Adapted from: Oliver JE, Wood T. Medical conspiracy theories and health behaviors in the United States. *JAMA Intern Med.* 2014;174(5):817–818.

For an international perspective, a large 2013 study by the Organisation for Economic Co-operation and Development of numeracy, literacy, and problem solving in technology-rich environments placed the United States, for adults aged 16 to 65 years, well below the average in comparison with 23 other industrialized nations.¹⁴ How did these findings relate to health? In the United States, adults with low literacy levels were 4 times more likely to report “fair” or “poor” health, which was double the ratio seen in the other countries—low health literacy was more often associated with worse health in the United States.¹⁴ The literacy gap between adults from low socioeconomic status versus high socioeconomic status also was much greater in the United States than other countries.¹⁴

*Many groups exhort physicians to close the health literacy gap,*¹⁵ yet this appears to be a Herculean task. If I spend 45 minutes with a patient, twice a year, can that trickle of communication counteract the tsunami of TV, Internet, and social media information on a substrate of inadequate science education? Patient perspectives increasingly include a variety of health myths and health conspiracy theories. In a 2013 study of a representative sample of Americans, 49% subscribed to at least 1 medical conspiracy theory (TABLE).¹³ The paradigms of evidence and the scientific method, instilled in residents over many years of education and experience, may be insufficient tools to use with patients who do not understand or accept them. Nevertheless, residents *must* understand their patients' perspectives for effective communication and for patient-centered care.

*Studies show that when physicians spend more time talking with patients, better outcomes and impressive cost savings can result.*¹⁶ Under a fee-for-service model, spending more time talking can risk practice financial solvency. In contrast, under new value-based reimbursement models, improving quality while lowering costs can be advantageous to all parties. In practices as diverse as orthopedics, Kaiser Permanente chronic disease clinics, and care services for patients with end-stage renal disease, when physicians spend more time talking with patients, this saves money and improves the quality of care.¹⁶ Thus, if more talking is part of the answer, do residency education programs have effective educational approaches to maximize residents' abilities to engage patients with low or intermediate health literacy? This is particularly important as current time-motion studies show decreasing amounts of resident time with patients¹⁷; therefore, we need highly effective communication strategies.

The *Journal of Graduate Medical Education (JGME)* has received many papers focused on resident-as-teacher programs. These programs target teaching medical students and other residents. In contrast, we have received few papers that describe training residents to efficiently assess health literacy and effectively communicate with patients who have fundamentally different health perspectives. Educators in graduate medical education know that residents must learn to communicate well with patients from different socioeconomic, cultural, and ethnic backgrounds, and of different ages. We may not have *yet* fully recognized the need for residents to understand and connect to patients with different degrees of health literacy.

JGME editors hope to see more studies on this topic.

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