

BITTER PILL: How Misreported Research Affects Public Perception of Psychiatry and What Can Be Done About It

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For cartoonists and comics, the constant barrage of conflicting scientific reports on health is the gift that keeps on giving. A panel drawn by political cartoonist Jim Borgman shows a reporter relaying health news chosen at random by three different spinner wheels behind him (Figure 1). Titled “Today’s Random Medical News from the New England Journal of Panic-Inducing Gobbledygook,” the cartoon pokes fun at the seemingly daily reports of this food/product/stressor causing that dire illness/condition in this, that, or the other population. It’s a cynical point of view, but one rooted in reality.

One way to cope with the media’s frequent and gloomy health reporting is to accept uncertainty until the scientific community reaches some kind of consensus. But while contradictory findings often elicit apathy or puzzlement from the public, they may have more adverse repercussions for pediatric mental healthcare. Misinterpretation and fear derived from this confusion can deter families from seeking treatment for their children. Part of the scientific process is, of course, testing and retesting hypotheses and reevaluating findings, which augment the

number of these conflicting reports. But another major contributor to public confusion and misinformation is the popular press, which has been guilty of misreporting study findings, inadequately conveying scientific uncertainty, or extending the life of faulty science by prolonged discussion. Understanding the causes and results of these three major issues will help clinicians tackle the problem of bad science reporting and its tendency to linger in the popular consciousness, affecting families’ decisions to start or continue psychiatric treatment.

As the media is fond of reminding us, Americans lag behind a plurality of countries in science education. The most recent report of the Program for International Student Assessment (PISA) ranked the United States 22nd in science, a slide from its ranking as 18th in 2009.¹ The unfamiliarity with science that is represented by these poor scores has resulted in an unfortunate mélange of erroneous reporting and public misunderstanding. Trained science reporters who can translate research findings into the newsprint vernacular are a rarity, as newspapers shrink or shutter their science sections entirely.² Meanwhile, the trend of Web-based journal-

ism towards “curating” news stories—which often amounts to sites’ algorithms simply linking to previously published reports—does a disservice to trained science reporters and the public alike. While the popularity of certain articles means less of a demand for specialist reporters, it also extends the life of articles indefinitely, no matter their quality. There are fewer job opportunities for science journalists, and thus more news of published studies is reported by individuals whose understanding of science is not necessarily better than their readership’s.

As a result, there is far more room for misinterpretation of study findings. The sources of information, often press releases, can be overly technical, and while journalists may be accustomed to dense text and specialist language, few-

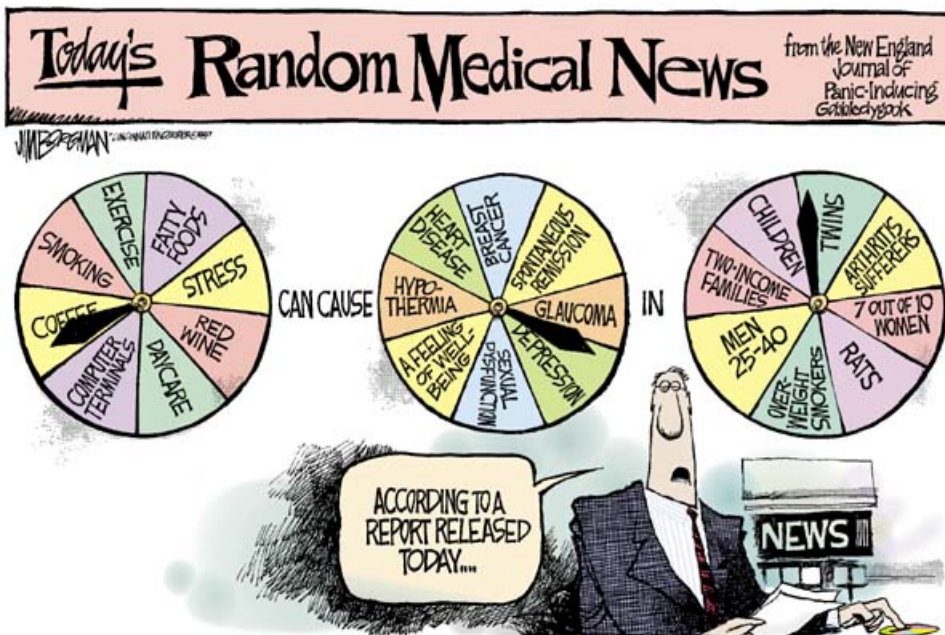


Figure 1. JIM BORGMAN © Cincinnati Enquirer. Reprinted with permission of UNIVERSAL UCLICK. All rights reserved.

er than ever have doctorates in scientific fields,² let alone the comprehensive knowledge of specific subjects that researchers have. Many have contacts in the science world to help demystify the more impenetrable press releases.³ But between the potential for journalists to misunderstand the research and the news outlets trimming information on findings' nuance in order to punch up an article for general interest, the finer points of studies can get lost in translation. Ben Lillie, PhD, science writer and co-founder of the website The Story Collider, which combines scientific research with storytelling, recently discussed how newspapers grab readers' interest in new research. By running eye-catching headlines and simplifying the findings to appeal to non-specialist readers, news outlets may inadvertently edit out most of the intricacies of the papers discussed. Or, while not technically misleading, articles may report on new health research without noting study limitations, or the preliminary nature of the findings, or other such disclaimers.³

The website Sense About Science (www.senseaboutscience.org) specializes in training the public to ask for evidence before accepting conclusions and also clarifies news reports of scientific findings. Shaun Treweek, PhD, who studies trial methodology, responded to an April 2007 article in *The Daily Telegraph* reporting a study finding that taking large doses of ibuprofen can increase the risk of having a heart attack. Dr. Treweek notes in his response that out of 373 study participants, only 8 experienced negative effects while taking ibuprofen and aspirin, and only 1 of 394 participants experienced negative effects while taking aspirin and some other drug. The risk, according to the paper's authors, is between 1.13 or 72.76, a range resulting from such a small study and making the information impossible to act on, barring further research and clarification,⁴ but such criticism was not reported to the public. All too often, the media publishes study findings without checking whether the research method essentially nullifies them. Or the media may fail to assess the credibility of the source. TIME Healthland, for example, reported on a poster at a 2013 American Chemical Society conference that purported to show elevated lead levels in imported rice⁵ while failing to note that the research had not undergone peer review and had aroused suspicion in fellow conference attendees.⁶ Instead, it is up to experts like Treweek to assess and qualify claims paper by paper (or poster by poster)—hardly an efficient method of making sure the public gets all the facts.

Combine faulty reporting, unusually flawed studies, and the media's insistence on appearing fair and balanced, and you get a cocktail of bad science with a lingering af-

tertaste. Perhaps the best example of this is the infamous case of Wakefield *et al.*⁷ and the discredited link between the measles, mumps, and rubella (MMR) vaccine and autism. In spite of the scientific community's dismissal of the study as poorly structured, Wakefield's serious ethical lapses, and *The Lancet's* 2010 retraction of the article, the study remains a topic of frequent debate. The media's insistence on balanced story presentation has meant that the arguments of parents who refuse to vaccinate their children are given the same airtime as those of the medical community, as if the findings of that study in particular are still a valid basis for discussion.⁸ Scientists have conducted multiple epidemiological studies which, along with other types of studies (in laboratories, pharmacodynamics studies, etc.), have compellingly shown that there is no link between the MMR vaccine and the increasing prevalence of autism, while multiple other studies have offered other, more compelling explanations for the increasing prevalence of autism. Meanwhile, the ongoing debate about the relationship between the MMR vaccine and autism has serious public health ramifications. Journalistic ethics require that the press cover both sides of debates, but balance is more complicated than simply giving equal airtime to the pro and con sides of any given issue. The media must find a way to convey the nuance and uncertainty of scientific methodology so that people can make informed decisions about their health. In addition, the media must report on debates within the scientific community without publishing nonsense or ill-intentioned inaccuracies. It is imperative that the media acknowledge the ever-evolving nature of science, which is better understood when the public has improved science literacy. By relying on the pro and con model of achieving balance regarding the Wakefield study, the press continues to behave as though opting out of vaccination for the sake of preventing autism is an informed and legitimate if alternative decision for parents to make. As a result, wealthy school districts like those in southern California have reported that as many as 60 to 70% of parents have opted out of vaccinations, a percentage that mirrors the lack of vaccinations in countries like South Sudan.⁹

We can hope that organizations like Sense About Science that are teaching people to recognize irresponsible reporting and set higher standards for the media will help beat back the onslaught of misinformation. But clinicians and researchers can also work to counter problematic science reporting. Sites like Retraction Watch (www.retractionwatch.com) help members of the scientific community stay up to date on which papers have been flagged for serious editorial concern. Publications like *Connect* and

JAACAP's podcasts familiarize early-career clinicians with the editorial and publication process, which helps illustrate not only the mechanics of the processes, but also the drawbacks. A panel discussion at the August 2014 annual meeting of the International Society of Managing and Technical Editors (www.ismte.org) emphasized the fact that not all errors in studies can be caught by the review process. Clinicians should approach all research with a critical eye, noting the study's methodology and any potential limitations that are minimized in the discussion. Readers should question bad data and interrogate research through letters to the editors of the journals containing the papers in question. By pairing a well-run peer review process with critical and discerning readership, the momentum of a problematic paper reaching the public will be slowed by scholarly objections.

Clinicians must be prepared to address the effects of factual misrepresentation in the treatment room with patients. In a world where concerned parents read one minute that a certain medication is linked to devastating side effects and that such a link has been disproven the next, it is understandable that they would then approach psychiatric therapies with caution. This hesitation is important for clinicians to recognize and accept when considering treatments with patients and their families. Some practical suggestions:

- Be attuned to what patients and their parents fear,

where those fears come from, and think hard about how that anxiety can be alleviated. While it is tempting to dismiss fears of psychiatry and psychotropic medication, you are unlikely to change a hesitant parent's or child's mind by pointing out the flaws in their arguments in a single meeting.

- Be willing to listen to parents/children and their concerns; if they think you won't listen, they won't tell you. This also means that if they are going to do research on their own, ask them to bring it in so you can discuss it, and then do so, in a respectful, educational way.
- Psychoeducation can include the basics of scientific literacy: be able to explain why a study is problematic, or be able to explain the evidence in a way that makes sense.
- Have resources available for families.

Luckily we are living in a moment when concerned scientists and science journalists are using new technology to give the public greater access to accurate information. Some of these resources are listed in Table 1, categorized by medium. Between interactive websites, blogs, and podcasts, so much more responsible reporting is at our fingertips. On the Sense About Science website, individuals can "Ask a Scientist" their burning questions; they do not need to sift through news reports of dubious provenance for their answers. Story Collider (<http://storycollider.org>) features a podcast that broadcasts sto-

Table 1: Resources Sources	Highlights	Notes
Websites <ul style="list-style-type: none"> • <i>Nautilus</i> (nautil.us/issue) • <i>Aeon Magazine</i> (aeon.co/magazine/psychology) • <i>Quanta Magazine</i> (www.simonsfoundation.org/quanta) 	<ul style="list-style-type: none"> • <i>Nautilus</i>: "Why We Procrastinate" • <i>Aeon Magazine</i>: "Outlook: gloomy" • <i>Quanta Magazine</i>: "Inside a Brain Circuit, the Will to Press On" 	These sites feature thoughtful reporting on science in general but psychology in particular.
Blog <ul style="list-style-type: none"> • National Geographic: Phenomena (www.phenomena.nationalgeographic.com/blog) 	<ul style="list-style-type: none"> • "Only Human" — a section specifically on the brain, emotions, and the human condition. 	This blog features work by some of the best science writers today.
Podcasts <ul style="list-style-type: none"> • Story Collider (storycollider.org/podcast) • Radiolab (www.radiolab.org/series/podcasts/) 	<ul style="list-style-type: none"> • Radiolab's "Juicervose" — explores families' experiences with autism (positive and negative) and consults autism experts. • Radiolab's "Talking to Machines" — includes a segment on the invention of a robot therapist. 	Both podcasts explore current issues in science, with some episodes focusing specifically on issues in psychology/psychiatry.

ries about science in daily life, available wherever listeners take their smartphones. The more commonplace good science reporting becomes in daily life, the less resistance (we hope) clinicians can expect from frightened or skeptical families and patients.

On the other hand, clinicians can also expect that more access to information on research and clinical trials will encourage families to be more accepting of new and different therapies. Families already involved in treatment may raise new concerns about their chosen course when research purports to show unforeseen side effects. Or they may have collected anecdotes of natural, drug-free solutions that other parents swear by. Though these parents may lack the extensive training of clinicians, they want the best for their children, and their concerns and suggestions should be considered. Think of them as your ally in sifting through the research to find a workable treatment plan. Ideally that treatment plan would allow the family to strike a balance between traditional medicine and whatever helps them feel most comfortable, whether that is experimenting with diet or something else.

In the process of investigation and of publishing new findings, scientists and their reports can be ill served by factual error, faulty reporting, or public misunderstanding-

ing. These problems can aggravate popular misperceptions and fears of psychiatry, particularly those of young children, who cannot effectively voice their concerns or represent their own interests. To help combat these challenges, child psychiatrists can become more critical and exacting consumers of the scientific and lay literature and forge mutually enriching partnerships with science writers.

Take Home Summary

- Due to numerous factors, including unfamiliarity with the scientific process, the decline of specially-trained science journalists, media bungling of "balanced" stories, and occasionally flawed studies, new research is often misreported or misinterpreted by the public.
- As a result, the public and clinicians alike have to be discerning consumers of the research, questioning and evaluating findings and reports.
- Clinicians have to be prepared to face the result of misreported mental health research when talking to patients and their families, and approach these interactions patiently, thoughtfully, and with plenty of resources.

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