

Bad Science

Ben Goldacre

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Review by Alex Lea

Reading this book, I'm reminded of the National Lottery. Not because Ben Goldacre mentions it explicitly, but because it summarises what the book is about. It's about a blatant disregard for the facts.

On the rare occasions I play the lottery I usually pick a random selection of numbers, probably with a general spread across the range, maybe with a few special numbers in there for good measure. What I don't do is pick too many numbers close together because they won't come out in sequence. I know that there is roughly a fourteen million to one chance that my numbers will come out. I know that that is the same for whichever six I pick. I could pick six numbers in sequence and they would have the same chance of being picked. I know this because I have a rudimentary understanding of probability. But I don't pick them because I *think* the chances of them coming out are smaller than a spread. After all, how many times would you see that set of numbers?

Well, the answer is roughly fourteen million to one. Same with every other combination.

The same is true with complimentary medicine. Deep down we might understand that it's generally pointless and mainly smoke and mirrors. But we buy into it. I take a ginseng and ginkgo biloba everyday because I read somewhere that it can help mental agility and memory. I've also read that there's little or no evidence to support that fact. But I still stock up with tablets every month or so.

Same goes for homeopathy - no evidence whatsoever and some pretty cranky pseudo-science behind it involving shaking water, but people buy into it. People also benefit from it, but not in the way intended. The benefits from homeopathy come from sitting down and discussing your problems with someone, believing that they can help you and the placebo effect from taking a sugar pill. This works for some people, but this isn't the problem that Goldacre has with homeopathy and the other various quacks and dodgy science the book covers. What is taken to task in *Bad Science* is that bullshit (and he uses that work liberally throughout) that is spouted under the banner of science; the false claims, the doctored and dubious data and fudged research findings, the hidden agendas, links to interested parties and the way

in which science and research is reduced to an afterthought by the media; as Goldacre puts it, “[the] media blindness and inability to accept responsibility.”

The book itself is written in a loose and journalistic style as you would expect from a newspaper columnist. There’s a liberal helping of analogies and examples to make the pages fly by and maintain interest. There are chapters on specific individuals (Gillian Mckeith, Patrick Holford) and health stories (fish oil, MMR and MRSA) as well as more technical chapters dealing with specific research issues (the placebo effect, the role of big pharma in research and media presentation of science). These are woven together to create a text that regularly changes topic to keep the reader immersed in the overall subject matter. There’s even a chapter on “Bad Stats” (Rad Stats' arch nemesis?). Given that the book is focused tightly on health matters, it maintains it’s momentum throughout and the style in which the book is written moves things along at an enjoyable pace.

Given that this is a review for Rad Stats, we should really cover the research and data said of things. What we get in *Bad Science* is a well argued and structured critique of the way research and data are used to promote agendas and sell pills, remedies and treatments to us, the public. Throughout the book, Goldacre doesn’t let the evidence for and against bog down the prose. If we want more information, it’s clearly signposted. Which in a way is the whole premise of the book; too often we read articles in the papers and watch stories on the TV of apparent findings and research and we take them at face value. For example, this morning on BBC Breakfast there was an article claiming that violence in schools has increased by 75%.

Shocking.

Hang on, 75% increase on what? In how many schools? Over what period of time?

But no, the presenter was already off quizzing two teaching ‘experts’ on the implications of this finding without justifying why this story was important enough to be reported. Now don’t get me wrong, I’m not saying that I want a helping of quantitative research methodology alongside my toast every morning, but surely we need to know the context of what we’re hearing. Too often we’re spoon fed findings without knowing the full picture. We hear ‘experts’ wheeled onto TV shows (or with their own TV shows) and we’re led to believe that they are authorities.

Well, they are wearing a lab coat.

The book pulls apart these experts, with particular focus on Gillian Mckeith. It turns out she has a more than questionable background with a less than watertight set of qualifications (Ben Goldacre

apparently bought one of her qualifications for his dead cat for £60). There are also exposés on the way in which pharmaceutical companies fiddle with research findings (Don't like the outliers? Remove them. Outliers prove the point? Keep them in), the way that 'shocking new research' gets published and hogs the attention, while research which doesn't show anything new doesn't even get published.

There's a great section on the way in which companies commission research to find 'the equation for-' and get scientists and mathematicians to put their names on it for a price. In some cases the data provided doesn't even show what the company wants and it has to be fudged.

There are also some simply shocking chapters on the 'laboratory' at the heart of the MRSA scare and the role of AIDS dissidents in South Africa which beggar belief.

Overall, the book stands as a lesson to us, the public, to go out there and question and interrogate what we are being spoon fed through the media and which is used to support false health claims. Studies, data and background information are all available to help us make informed decisions about our health and well being, yet we get suckered into believing what we hear through the media, even more so when it is wrapped up in technical sounding jargon and convincing sounding statistics and research. As Goldacre points out towards the end:

People aren't stupid. Anyone can understand anything, as long as it is clearly explained - but more than that, if they are sufficiently interested.

By dumbing down and enshrouding science and research with an air of impenetrability, as the media often do, all it is doing is making the subject matter less interesting and allowing the public to get suckered into believing what they hear, instead of making informed decisions for themselves. *Bad Science* goes some way to highlighting the importance of questioning what we are told in order to get to the heart of the issues that affect our health and well-being.

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(The review is authored by Alex Lea in his personal capacity and does not reflect views of Leicestershire County Council.)