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More on Bad Social Science

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In “Bad Social Science,” (2019) I pointed to the phenomenon of non-specialists in the social science domain making claims that fall very far short of what social scientists consider best practice. I identified “several facets of bad social science: ad hominem attacks, not defining terms, use of limited and dubious evidence, misrepresentation, lack of reference to alternative viewpoints, lack of quality control, and drawing unjustified conclusions” (6). This is quite a roll call of shortcomings.

There is value in pointing to these problems. They can provide a reminder of the importance of maintaining high standards in both research and public commentary. They offer a potential set of tools for responding to attacks on social science. Finally, they point to the importance of encouraging members of the public to better understand social science approaches. Given the relentless democratisation of commentary about what used to be the preserve of scholars (Fuller 2018), rather than decrying the trend, it makes sense to help make public discussions more informed by best practice in argumentation.

Sokal’s Reply

As examples of bad social science, I drew on examples from the Australian vaccination debate, an area in which I’ve been involved and which has ample material for study. Alan Sokal (2019), in his reply to my article, agrees with the main thrust of my argument, namely the importance of good social science argumentation. Like me, he is unhappy with techniques such as ad hominem and misrepresentation. We are largely in agreement.

However, he questions one of my examples. Referring to gastroenterologist Andrew Wakefield, I wrote “Incorrect statements about Wakefield are commonplace, for example that he lost his medical licence due to scientific fraud” (11). Sokal, drawing on the report of the UK General Medical Council that investigated Wakefield and withdrew his licence to practise medicine, argues that part of the GMC’s case against Wakefield indeed concerned scientific fraud.

There has been an extraordinary amount of writing about Wakefield. It is plausible to argue that he has been more frequently denounced in public commentary than any other figure not just in the vaccination debate but in any scientific controversy. This itself would be worthy of a social science analysis. Here, though, my focus is more limited. Firstly, I illustrate some other incorrect statements about Wakefield. Secondly, I look specifically at the issue of Wakefield and scientific fraud. Thirdly, I comment on information seldom raised or discussed in commentary about Wakefield.

Comment about Wakefield: An Example

There are so many examples of misinformation about Wakefield that it is hard to know where to begin. To select an item for the purposes of illustration, I looked on the database Factiva, searched for “Andrew Wakefield” and chose the first news story listed. That was on 11 May 2019, and the story turned out to be “Putin’s anti-vaxx trolls and the dark war on

vaccines which snuffs out children’s lives” by Dr Rachel Clarke (2019), published in the UK newspaper *The Mirror*. Here is some of what Clarke says about Wakefield:

No single individual has done more to stoke fear among parents than the disgraced former gastroenterologist, Andrew Wakefield.

Two decades ago, Wakefield, who is British, published a paper in *The Lancet* claiming the combination measles, mumps and rubella vaccine caused autism.

Although the paper was eventually retracted and Wakefield struck off the medical register for his fraudulent science, the damage was done. Parents panicked and shunned the vaccine in droves, triggering outbreaks of measles across the globe.

Consider some of the statements from this passage.

☞ “Wakefield ... published a paper.” Actually, there were 13 authors of the paper in *The Lancet* (Wakefield et al. 1998). Wakefield was the first author and one of three principal investigators.

☞ “claiming the combination measles, mumps and rubella vaccine caused autism.” The paper didn’t claim the MMR vaccine caused autism, only that this possibility was worthy of further investigation. For example, the paper concludes “We have identified a chronic enterocolitis in children that may be related to neuropsychiatric dysfunction. In most cases, onset of symptoms was after measles, mumps, and rubella immunisation. Further investigations are needed to examine this syndrome and its possible relation to this vaccine” (Wakefield et al. 1998, 641).

☞ “Wakefield struck off the medical register for his fraudulent science.” Prominent claims about the research reported in *The Lancet* paper being fraudulent came later. I will come back to this point.

☞ “Parents panicked.” The implication is that Wakefield was solely responsible for parents panicking. However, Wakefield had contact with very few parents, and very few parents peruse articles in *The Lancet*, so there must have been some other social process involved for parents to become aware of concerns about the MMR vaccine. Prominent commentator Ben Goldacre (2009, 290–331), for example, says the key intermediary was the mass media.

Clarke’s article thus illustrates what I had in mind when I wrote “Incorrect statements about Wakefield are commonplace.” It is easy to find other media stories and blog posts presenting incorrect statements about Wakefield.

Clarke has made valuable contributions in other domains. The examination here is solely to illustrate statements that are inaccurate or otherwise do not measure up to the standards of good social science.

Scientific Fraud

When I wrote that “Incorrect statements about Wakefield are commonplace,” the only example I gave was that “he lost his medical licence due to scientific fraud” (11). On 6 June 2011, the *BMJ* published an editorial titled “Wakefield’s article linking MMR vaccine and autism was fraudulent.” The editorial states that “... the GMC launched its own proceedings that focused on whether the research was ethical” and that “... although the scale of the GMC’s 217 day hearing precluded additional charges focused directly on the fraud, the panel found him guilty of dishonesty concerning the study’s admissions criteria, its funding by the Legal Aid Board, and his statements about it afterwards.” In contrast to the GMC’s hearing, the editorial states that “In a series of articles starting this week, and seven years after first looking into the MMR scare, journalist Brian Deer now shows the extent of Wakefield’s fraud and how it was perpetrated” (Godlee et al. 2011).

Thus, from the point of view of the editors of *BMJ*, the GMC’s investigation of Wakefield did not focus on fraud, but Brian Deer’s new investigation provided clear evidence of fraud. This perspective was behind my statement that “he lost his medical licence due to scientific fraud” was an example of an incorrect statement about Wakefield.

Sokal in his response has provided a different perspective, arguing that scientific fraud was among the ethical transgressions that the GMC found proved and that warranted deregistration. This is a somewhat different assessment than suggested by the 2011 *BMJ* editorial. I do not propose to examine the differences between Sokal’s analysis and that of the *BMJ* editors. The important thing here is that Sokal has provided voluminous backing for his assessment.

On the other hand, Clarke does not provide any evidence or argumentation to support her statement that Wakefield was “struck off the medical register for his fraudulent science.” It is in this sense that Clarke’s statement can be classified as bad social science. Sokal’s treatment of the same topic is far superior as social science.

Information Not Presented

Is it poor practice to present only one side of an argument? If so, the Wakefield story provides numerous examples. Clarke’s article, like many others, presents only the case against Wakefield. There is not even a suggestion that there might be another side to the story.

Wakefield (2010) wrote a book, *Callous Disregard*, that provides a detailed rebuttal of the GMC process. It is possible to disagree with Wakefield’s evidence and arguments, of course, but it is rare to see a mention of the book, much less a careful assessment of its claims.

At the same time Wakefield was “struck off the medical register,” so was one of his co-authors, John Walker-Smith. This is hardly ever mentioned. Nor is it mentioned that Walker-Smith challenged his deregistration in court. The judge in the British High Court criticised

the GMC's reasoning and conclusions, and quashed the GMC's decision about Walker-Smith (Aston 2012). This suggests the possibility that the GMC's assessment about Wakefield might also be unsafe.

In some of the commentary about Wakefield, an implication is that his alleged fraud discredits criticism of the MMR vaccine, or even discredits criticism of any vaccine, without any argument to support such implications. Never mentioned is alleged fraud by proponents of vaccines (Barry 2015; Grundvig 2016), nor is there ever any suggestion that fraud by a proponent of vaccines discredits the case for vaccination.

The Aim of “Bad Social Science”

My aim in “Bad Social Science” was to point out that much public commentary makes the same sorts of claims as social scientists but falls far short of the expectations of experienced social science practitioners. The contrast between many of the practices in public debates—for example ad hominem attacks, misrepresentation and illogical conclusions—and practices in scholarly circles is stark.

I illustrated facets of bad social science with examples from the Australian vaccination debate, one of the most vicious and polarised public controversies I have ever encountered, and which therefore offers many striking examples.

I appreciate Alan Sokal questioning one of my examples by providing a careful analysis that is a model for others. This has offered me the opportunity here to illustrate bad social science in relation to claims about Andrew Wakefield. The Wakefield story is complex and highly contested. It deserves careful analysis; one of the few careful and balanced analyses I've seen is by a social scientist (Largent 2012, 94–137).

There is more to bad social science than the vaccination debate and Wakefield. They are worth analysing, but so are many other domains.

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