

REVIEW

The politics of research—Or why you can't trust anything you read, including this article!

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Abstract

In this post truth world, it would be comforting to know that science and scientific research can provide unbiased factual evidence either to refute or to validate claims made by the media. However, this article highlights how “research” is consistently both deliberately and accidentally biased from hypothesis right through construction to data analysis and reporting of that data. It goes on to show how, in the world of psychotherapeutic research, the risks are even greater, but highlights why this does not mean we should abandon research altogether.

KEYWORDS

p-hacking, politics, qualitative research, research bias, scientist practitioner

Drinking a glass of red wine a day is good for you!!!

(M. Oaklander, *TIME Health*, 2015)

Eating a bar of chocolate per day can help you lose weight!!

(A. Patz, *Prevention*, 2015)

Cognitive behavioural therapy is the best form of talk therapy!!

(Department of Health, 2001)

Cognitive behavioural therapy is a scam!!

(J. Hope, *Daily Mail*, 2014)

It can be easy to assume that once “scientists say” is used as a prefix, then what follows is an irrefutable fact. However, as Stephen Fry noted once on the UK knowledge based quiz QI (Quite Interesting), during the 10 years the quiz had been on air over 60% of what were supposed to be “facts” at the time of airing had been later proven to be false! So therefore, rather than considering scientific knowledge as immutable, it can be more helpful to see it simply as what the bulk of relevant specialists agree on at any particular time.

However, how knowledge itself is shaped, that is, what is focused upon in research in the first place, plays an enormous role in the “truth” that is later expressed. For example, corporate research usually has specific targets in mind— finding a drug that reduces anxiety, for example. So, if these researchers find a drug that does this, but also

has other, less wanted side effects, the pressure would naturally be on the researchers to publish the desired results, and minimise the undesired. As a large proportion of research is funded by governments and businesses, it seems logical to suggest that data may well be selected that support arguments or goals, and any that discount them are more likely to be ignored.

Whilst this might seem like supposition, here are two examples to support this belief. Consider the claim, shown above, that eating a bar of chocolate a day can help you lose weight. This piece of research by Bohannon (2015) quickly went viral, but it later transpired that the researcher, a journalist, had deliberately biased his results to increase the likelihood of a false positive, and hence the likelihood of publication. His aim was to show how easily this could be done and accepted by the academic literature, the media, and the public at large. Whilst his results were statistically significant, with a p rating of 0.05 (theoretically, the calculated probability has a less than a one in twenty chance of being wrong), he had constructed the research specifically to increase the likelihood of obtaining such significance. The sample size was extremely small (only five per group), he explored multiple possible positive outcomes (i.e., if he had not found significance with weight loss, then he could have found it for sugar in the urine, mood, and several other variables), and the research was conducted over a short time frame. Although in this instance Bohannon was deliberately trying to make a point, worryingly this type of manipulation of data is now a well-known phenomenon within research, and is called "p-hacking" (Veritasium, 2016).

Or you might wish to consider another claim set out above: that drinking red wine is good for you. This finding, based on original research by Gepner et al. (2015) and Baur et al. (2006), was also picked up by the media. However, when one goes back to the original data, one can see that Gepner et al.'s study focused on a biased sample of 227 stable diabetics, and noticed only modest changes in just one of several factors (possible inadvertent p-hacking again), and for Baur et al.'s study red wine was not used at all, nor was the research done on humans. Instead, the focus was on large amounts of resveratrol (1000 times that the quantity found in red wine) given to rats!

These are just two of many examples of how, when one returns to the original research, it is clear that the "facts" cannot be extrapolated or generalised in the manner portrayed in the media, and that they may have been presented in a manner which supports a particular, sometimes political, agenda.

However, as noted already, this is just the tip of the iceberg when it comes to the political biases within the academic field of psychological research in particular.

Take the case of John Bowlby and the development of his attachment theory (1982). The initial research was funded by the British government following the Second World War, and concluded that secure maternal (paternal was not researched) early attachment was crucial for mental well-being later in life. According to some feminist literature (see Contratto, 2002, for a review), it just so happened that the government was keen to get women back into the home, so that men returning from the war had work to go back to. How convenient, they argue, that some very well-publicised research supported the imperative of their having to be back in the home with their children in order to be good mothers!

The rest of this article will highlight the myriad of biases we need to take into account in addition to the above, when considering more critically the research we read, as well as specifically in relation to psychotherapeutic interventions.

1 | BIAS WITHIN RESEARCH DESIGN

1.1 | Assumptional bias

Most academics have a pressure to publish, as this forms part of their key performance indicators. However, as academic peer-reviewed journals overwhelmingly favour publication of significant positive results (Michel, 2015), researchers are less likely to take time to prove assumed correlations are false, that is, to use

the null hypothesis as their assumptional start point. It follows, therefore, that once research is published that “proves” a certain position, less effort will be placed by researchers in trying to provide counterevidence to this “proven” efficacy.

Another factor that biases outcome is whether one assumes that the treatment should be better than no treatment, or whether one tests this assumption against comparative treatment approaches. Because this latter methodological design is less likely to yield significant results, as it is comparing relative rather than absolute efficacy, it is less likely to be favoured. This can result in an overestimation of treatment outcome, as merely taking part in a “treatment” of any sort would, if well intentioned, be more likely to yield a result, even if the outcome is in fact measuring the placebo effect. That is, in psychotherapeutic unlike medicinal research, you cannot provide an alternative placebo treatment, only a no treatment or a different treatment option.

1.2 | Funding bias

As has already been noted, research costs money, and, in many instances, the money comes from areas that have their own agenda. Take, for example, the rise of cognitive behavioural therapy (CBT) research, which has received considerable government funding, and is now recognised by the National Institute of Clinical Excellence (NICE) in the UK as the preferred talk therapy for a range of psychological disorders including anxiety, depression, schizophrenia, post traumatic stress disorder (PTSD) and eating disorders.

How did this come about? It can be argued that, once funding is focused in a particular area and positive assumptional biases are in place, then funding is likely to follow “proven” efficacy, resulting in even more “proof” of efficacy (Holmes, 2002). Other therapeutic approaches, which could have just as much value, could then be ignored owing to difficulties in finding funding to cover such “new areas.” This, then, creates a circular reinforcement of “evidence-based practice” becoming “practice-based evidence” through its widespread use, which then gives rise to more funding for further refinement of the “proven” intervention.

1.3 | Scientist practitioner bias

The scientist practitioner model is often touted as the “gold standard” design for psychological research (Larner, 2004). This model takes the scientific method of randomised, large-scale, homogenous samples matched against similar controls, and uses statistical analysis to determine whether a “treatment” is “significantly different” to a matched control group and/or alternative intervention. However, in order to take this model for treatment research, one has to assume that there is a form of “treatment” that can be measured. For example, that there is such a thing as “CBT” or “Psychotherapy” that can be administered to people, and that all people are coming to treatment with similar needs (a homogenous sample). Clarkin (2012) argued that this is simply not the case, and this confounds the validity of traditional quantitative research methodologies for all psychotherapeutic research. For example, when we say CBT or psychotherapy, what exactly is the treatment and what, within this treatment, are the active ingredients, the non-active, and the counterproductive ones? That is, even if a large-scale piece of research shows significance for a treatment approach, we have no idea “what works about what works” nor what is the best specific, tailored approach for any one individual (Clarkin, 2012).

Indeed Morawski (2011) argued that for years the field of psychotherapeutic research has been off track in pursuing the scientist practitioner method of quantitative research in the first place. She argued that this method is only valid if the variables being studied are in fact quantitative; in her mind all psychological phenomena are not. Instead she recommends placing more weight on qualitative analysis, but using this not to develop “facts” of effectiveness, but rather to guide individual thinking and practice in a more reflective manner.

So why do quantitative methods still abound? It could be argued that there is a political expediency to this. Qualitative research, especially research using single case studies can help shine a light on reflective practice, but cannot provide “proof” that one particular treatment approach will work more effectively on the general

population than another. It is difficult for governments to make decisions based on such data. However, whilst for any one individual we may not know what works in advance, the scientific method appears to tell us that if we took 1000 people, then one standardised treatment approach might positively affect more of this group than another, assuming all other, non-researched variables are ignored. Indeed, Michell (2011) argued that, politically, quantitative analysis is convenient for policy makers as this reductionist approach makes it easier to assess whether a “treatment” is “valid” or “invalid.” However, it ignores the qualitative nature of the phenomenon being observed, such as the therapist variables, the therapeutic relationship, the context in which the therapy takes place, and so forth.

1.4 | Scientific rigour bias

Even if one accepts the validity of the scientist practitioner model, many pieces of research are simply poorly designed and poorly executed, yet, with the proliferation of the Internet, more easily available than ever. For example, in the US in 2000, a regulation was passed requiring medical researchers to register their methods before collecting their data. In trials for heart disease treatments, for example, as a result of this simple change positive results went down from 57% before the regulation was introduced to just 8% after (Rutherford, 2015)!

Psychotherapeutic research can be poorly constructed even more easily due to the number of variables noted above. Confounding factors can include:

- lack of homogeneity of treatment groups;
- comorbidity affecting the targeted treatment variable;
- lack of homogeneity of therapist variables;
- small sample size;
- lack of clarity on what is being tested.

Hagemoser (2009) argued that, even if one accepts the scientist practitioner method as best practice, due to these inherent confounding factors there remain many perils equating empirically supported therapies (ESTs) with the scientist practitioner ideal.

1.5 | Participant bias

Much psychological research in the past has been undertaken by universities. The participants, consequently, are often students—which already makes for a biased sample (Holmes, 2002). Looking at the original participants in a range of studies in more detail, this biased sampling process is repeated throughout treatment research history. Freud, for example, made grand statements about pathology based mainly on his limited work on young females and his gender-biased views (see Denmark & Paludi, 2008, for a review). Other research has taken biased population samples such as psychiatric patients, prisoners, or those volunteering for paid research, and again tried to make generalised statements. Add to this the small sample sizes in many pieces of research, and the risk of non-representative outcomes becomes clear. This is further complicated by the fact that much behaviour work has been done on animals—such as Thorndike's (1932) work with rats or more recent neuroscience research (e.g. Baur et al., 2006)—and then been assumed to hold true for humans. The rat brain, whilst similar in many respects, lacks the complexity of the prefrontal cortex of the human brain. Thus, to make any definitive statements about human treatment approaches based on rat studies would be suspect at best.

2 | BIAS WITHIN DATA EVALUATION

2.1 | Statistical bias

As noted above, p-hacking (manipulation of data) has become a known phenomenon in other areas of research. However, in psychotherapy research the picture is further complicated by the lack of clarity on what exactly are the dependent variables being studied. If one does not know and uses a scatter-gun approach of various treatment elements, then p-hacking becomes statistically more likely, whether deliberate or not. Also, statistics used to rate the significance of small, necessarily skewed, samples (e.g. Wilcoxon Rank Coefficient) are more susceptible to sample bias than larger samples using a large normal distribution sample size measure such as the p-test.

2.2 | Outcome bias

What is to be the evidence of success within the field of therapeutic research? It would seem obvious in the medical field that one would focus on the reduction of undesirable symptomology, and this is what most psychological research explores too. However, Clarkin (2012) argued that it is not clear what "success" should focus on. He argued that the design of any psychotherapeutic research should look more at the underlying causes of the symptomology, rather than at simply ameliorating the symptomology itself: Success, in other words, is better defined by looking at aspects of personality and its impact upon interpersonal functioning, rather than the consequences of difficulties such as symptoms of anxiety, depression, etc.

When scientists submit a paper, they rarely have to provide their raw data. Only roughly 9% of publications have such requirements, and, even then, the enforcement of confirming raw data is lax (Alsheikh-Ali, Qureshi, Al-Mallah, & Ioannidis, 2011). This allows for errors in data analysis to be published without peer review at best and with deliberate falsification of data going unchecked at worst.

In December 2014, for example, *Science* published an article claiming that gay canvassers had a more lasting positive effect than heterosexuals on voter's opinions on same-sex marriage (Rutherford, 2015). However the study was later retracted amid allegations of data discrepancies.

A more extreme example is research by Dr. Don Polderman that showed that beta blockers given during surgery did not lead to an increase in deaths. However, his data was faked, and further research proved that the drugs in fact caused a 27% increase in deaths. This fake research was linked to 10,000 deaths in the UK alone (Michel, 2015).

3 | BIAS WITHIN REPORTING

3.1 | Lack of null hypothesis study publication

Even if researchers find funding, and have the desire to try to disprove a positive outcome, there is a bias within journals against publishing such results. In fact, only 10% of publications publish null results (Michel, 2015). This worrying statistic is further complicated by the fact that, with a 0.05 p-value for significance, statistically 45 out of every 1000 reports will be false positives (Veritasium, 2016). This means that it is easily feasible for a false positive to be reported in the literature, and the many true negatives that could have been published to refute this evidence are either ignored, or as noted above, not undertaken in the first place!

3.2 | Evidence-based practice becoming practice-based evidence

The scientist practitioner model assumes that the best practice is evidence-based. However, once a piece of positive research is published, practice bias can take hold. Without scientific rigour or critical analysis, the presumed "effective" treatment approach can now be used. The practitioner assumes efficacy and will therefore risk a personal

endorsement of the efficacy of the approach in line with this assumption. As a result, anecdotal practice-based evidence builds, and this is provided as further “proof” of the effectiveness of the approach in question.

Within the area of psychotherapy, this risk of moving from evidence-based practice to practice-based evidence is particularly pertinent, as there is still much discussion, as noted above, about what exactly constitutes “effective” research in this area. In the absence of a clear research methodology, it is tempting to move into evidence-based practice, that is, a more faith-based rationale, rather than more impartial research methodology.

Furthermore, it can be argued that a logical progression, once a field is populated by believers, is that the more a particular approach is engaged in, the more practitioners there are in the field with a vested interest in maintaining the perceived efficacy of that approach—hence the greater the pressure to report positive outcomes to maintain that profession.

3.3 | Publication bias

The need to publish is enshrined in academic working practices. However, as noted above, roughly 70–90% of all published research is focused on significant results (Michel, 2015). Thus, not only is funding focused on supporting positive hypotheses rather than proving a null hypothesis, but publications will also often ignore data that disprove a hypothesis, even if the research has been undertaken!

A recent piece of research by Driessen, Hollon, Bockting, Cuijpers, and Turner (2015) concluded that, due to such bias, the efficacy of antidepressant medication has been greatly overestimated in the published literature. Further, this overestimation of treatment efficacy based on publication bias has been confirmed by Cuijpers, Smit, Bohlmeijer, Hollon, and Anderson (2010), who undertook a meta-analytical review of 1,036 papers and concluded there was significant publication bias in both psychotherapy and CBT research.

At the moment there is a virtual monopoly on academic publishing within peer-reviewed journals. Three publishing companies (Reed Elsevier, Wiley-Blackwell, and Springer) account for 42% of all published articles (Michel, 2015). These publication houses charge both for academics to publish and for access to these articles. This greatly restricts academic progress, especially for those in poorer countries. For example, a 1982 paper warned that Ebola was present in Western Africa, but this information was not picked up by Liberian doctors as they could not afford to pay the \$32 reading fee! Also, on one occasion Reed Elsevier was caught accepting money from pharmaceutical companies to launch new journals which favoured their positive studies (Michel, 2015).

More recently, some companies have also launched journals or online sites that publish and promote any article, without any discretion. Indeed, in this digital age it is easy to self-publish without the need of any filtering mechanism. This further raises the risk of fake science being brought into general consciousness. As there is pressure on academics to publish, this can be seen as an easy way to reach their quota (Michel, 2015). A classic example of this is the “chocolate helps you lose weight” sham study noted above.

3.4 | Media bias

Nothing sells a newspaper, or feeds an internet site, like a juicy headline. Indeed, given the “click bait” culture of the Internet, such sensational headlines are needed even more to help websites gain advertising revenue as you “click through.” Had the wine story above been written:

If you give a small number of rats 1,000 times the normal dose of resveratrol, which can be found in wine, there is a statistical link to a slight extension of their aging markers, but this cannot be extrapolated to humans or drinking red wine,

it probably would not have got as many reads as it did!

3.5 | Political expediency

It can be argued that the proliferation of the CBT approach within talking therapies has suited the governments of the time well. If you consider the implication of the traditional CBT approach, it suggests that the “pathology” is

located mainly within the individual, and therefore it is ultimately up to them to either make, or not make, changes. How convenient then that, assuming this model of psychopathology to be true, social and political responsibility for someone's ending up with that kind of an internal world can be largely ignored. The government, that is to say, do not then have to consider, or manage, the very real external influences—possible social deprivation, neglect, intergenerational trauma, bias within the criminal justice system, etc.—that may underpin any individual's mental health presentation.

4 | WHAT THIS MEANS FOR RESEARCH SPECIFICALLY INTO “EFFECTIVE THERAPY”

There is considerable research supporting the use of family therapy to improve mental health (see, e.g., Sprenkle, 2003, for a review), but due to the “gold standard” of research being assessed as being replicable, using consistent approaches and randomised controls, it has remained on the margin of mainstream therapy (Larner, 2004). This highlights the dilemma within the field of psychotherapeutic research as to what exactly the “gold standard” should look like, when one is exploring a process that is situational, interactional, complicated, and unpredictable. How do you effectively research therapeutic approaches which could be said to be more of an art than a science? As it stands, the politics of the scientist practitioner methodology suits the simplistic needs of providing replicable evidence to support funding decisions, but, as can be seen above, for all sorts of reasons this by no means answers the question, “What is best for whom, when, and how?”

Add to this the divisiveness of the media, and the picture is clouded further. A classic example of this is a recent piece in the Daily Mail online (Hope, 2014), where the strap line is “CBT is a scam and a waste of money.” This, apparently, was the conclusion of “leading psychologist” Oliver James. To support the argument, he made reference to “research” without actual referencing this research, which highlighted that 40% of people appear to recover after 5–20 sessions of CBT, but after two years “they are no different to those who had no treatment” (Hope, 2014). The conclusion from this was that CBT had been missold and psychotherapy, which looks at the cause not the consequences of psychological problems, should be the treatment of choice.

It could be argued that James, who works as a psychotherapist, had an agenda in this article to develop psychotherapy funding, and was using the term “research” to back this agenda. However, based on the arguments set out earlier, to view this article more critically one would have to consider:

- What is the agenda of the “expert”?
- What exactly is meant by “CBT”?
- What exactly is meant by “psychotherapy”?
- What about therapist variables?
- How large were the samples and how homogenous was the treatment?
- Where is the comparative research for psychotherapy being more effective than CBT under the same conditions?
- Five to twenty sessions is a massive variation in treatment length.
- What does “effective” actually mean?
- Why is the outcome focused on a two-year follow up? This does not invalidate the initial treatment gains made prior to this!

So, it seems reasonable to assert that all published research is likely to be biased, and hence flawed in some way. However, to simply ignore all research methodology within psychotherapeutic research is not the answer either. What we need, is to learn to be more critical in our terminology, research methodology and opportunities for publication. Some useful areas to consider taking account of each type of bias are suggested below.

4.1 | Design bias

- Consider trying to prove a null hypothesis rather than a positive result.
- Consider the value and limits of qualitative or quantitative analysis for any particular focus of research; don't just assume quantitative is best.
- Clearly define what is being exploring. For example, when someone says “psychotherapy” what exactly do they mean by it? What active ingredients are they proposing to measure?
- Clearly consider the target sample, including age, gender, sample size, and include the limits of this data in the research discussion.
- Clearly identify what “success” looks like.

4.2 | Data evaluation bias

- Ensure that a reflective, well-critiqued, single case study can be seen as just as valuable as a large-scale quantitative piece of research.
- If using quantitative analysis, ensure a large sample size, but also realise the limitations of this group statistical process when working with individuals.
- Be explicit on the presumed “active” ingredients of the therapy, and undertake research in which these active ingredients are researched independently.
- Be explicit as to whether the design is against matched controls, or comparative with other treatment methodologies.
- Allow for evaluation to be a more reflective process, rather than a purely statistical one.

4.3 | Reporting bias

- Search for data which discounts an outcome as well as supports it (there are some null outcome articles out there).
- Refer to the original literature rather than take as fact third-hand accounts.
- Clarify the possible agenda of the researchers and where the funding has come from.

5 | CONCLUSION

This article has explored the various ways in which research in general, and therapeutic research in particular, is shaped by political, academic, and economic influences. However, it is rare for research articles themselves to make any overt references to these influences.

It can be tempting to blame politicians and journals for implementing flawed methods to address societal and individual issues. Some of this may be deliberate, to advance political agendas, but it seems also readily apparent from the above that much of this may also be down to a lack of understanding of how to design, evaluate, and interpret research that is presented to them. However, as all research is socially constructed, as noted above, it will always have some bias. Therefore, it is not just the bias itself which needs to be challenged, but rather our incorporation of that bias when critiquing the research we read.

Thus, despite the critique above, it can be argued that the scientific method, which can include both qualitative and quantitative methods, with all its flaws, is still the best method we have to be purposeful in research. However,

without the ability to critique what we read, even science becomes fake news. The implications for the value of research and its impact on our society is immense. Rather than discard all data as false, what seems to make more sense is to provide decision makers with more skills to critically evaluate what is being placed in front of them. Will political bias then still prevail? Probably, so then it is up to us too, to examine the data in front of us with a similarly critical eye.

Or - have I simply manipulated the research provided above to support my own political agenda?

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