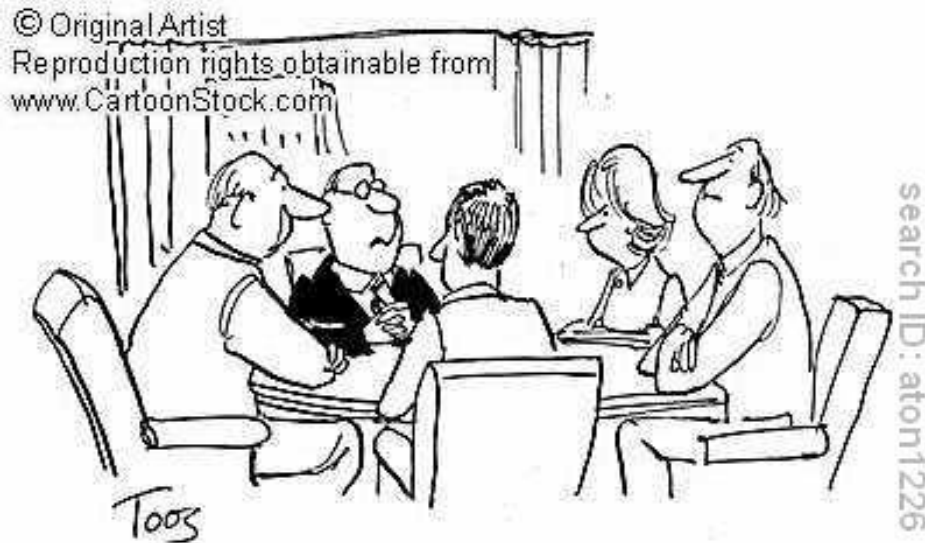


C82MST: Practical and statistical methods

Ethics

Tobias Bast

School of Psychology, University of Nottingham



"Make sure everything is done ethically. Within reason, of course."



The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA

Ethics



. . . (study of) the standards for what are the 'right' and 'wrong' things do.

- What specific ethical challenges do we face as scientists/psychologists?
- How could we deal with these ethical challenges?

What is the basis for your own ethical decisions?

- a) I consider my duties as a responsible agent and consider the rights of those affected by my actions.**

- b) I weigh the positive and negative outcomes of my actions and try to do as much good as possible.**

- c) A bit of both a) and b).**

Ethical frameworks

- Deontological ethics – ‘duty-’ or ‘rights-based’ ethics. Actions are considered ‘right’ or ‘wrong’ depending on whether they are consistent with the ‘duties’ of the agent and the ‘rights’ of those affected by the actions.



Immanuel Kant
1724-1804

- Consequentialist ethics – ‘outcome-based’ ethics. Actions are considered ‘right’ or ‘wrong’ following the ‘weighing’ of their positive and negative outcomes. Example: utilitarianism, aiming to achieve maximal happiness for the greatest number.



Jeremy Bentham
1748-1832

- In practice, ethical standards reflect both deontological thinking and consequentialist considerations.

Some ethical challenges for scientists/psychologists

- **Research conduct**

- **Participants/Subjects (humans & animals)**

- **Data collection, handling and publication**

- **Conflicts of interest**

- **Public relations**

- **Application of psychological knowledge**

Research 'participants/subjects' in psychology



Research involving human participants

- **Guiding principles:**

- Autonomy and protection of the human participant**

- **Historical milestones:**

- **Nuremberg Code, Nuremberg military tribunal 1947 – especial emphasis on informed consent**

- **Declaration of Helsinki, World Medical Association 1963 (last revision 2013) – based on Nuremberg Code, relaxation of the requirement for informed consent**

Most recent version: World Medical Association, 2013, *JAMA* 310(20):2191-2194. doi:10.1001/jama.2013.281053

- **Nowadays regulated by law of the land and professional codes of conduct**

What do you think does the ethical code of the BPS require concerning research involving human participants?

a) Incentives (e.g., payment) to take part.

b) Harm to participants must be avoided.

c) Informed consent whenever possible.

d) Participants should not be personally acquainted with researcher.

BPS ethical principles for research with human participants



Code of Human Research Ethics

Respect for autonomy and dignity of participants

- Harm to participants must be avoided and all risks carefully assessed
- Informed consent
- Debriefing

Are you considering relevant ethical principals in your research with human participants?

- Relevant to practicals, internship projects and final-year projects!
- Do you sufficiently consider potential risks to participants (these may not always be obvious)?
- Do you ensure informed consent and debriefing?
- Please see our School Research Ethics page: standard information and consent forms, ethical risk check lists and further information

<https://workspace.nottingham.ac.uk/display/PsychTeach/Ethics+Review+Process>

Research involving animals

- Psychological research may involve animals to study fundamental behavioural/cognitive mechanisms or the neurobiological mechanisms of behaviour.
- In many studies, animals are used because ethical considerations rule out that these experiments are conducted on humans.



What do you think is the current situation concerning animal research in UK?

- a) Whenever possible, animals should replace human participants in research.**
- b) There are strict legal regulations concerning research on animals.**
- c) There are no legal regulations of research on animals, even though researchers adhere to ethical codes of professional societies.**
- d) There are neither legal regulations nor commonly accepted ethical standards.**

Research involving animals

- Guiding principles:

- Principles of humane experimentation, *The Three Rs* (Russel & Burch, 1956)
 - ‘*Refinement*’, i.e. reduction in severity of inhumane procedures
 - ‘*Reduction*’ in the number of animals used
 - ‘*Replacement*’ of highly sentient animals whenever possible
- Animal welfare: husbandry must meet animals’ needs!

- Strict legal regulation:

- In the UK, all animal experiments involving vertebrates and the octopus are regulated by the Animal (Scientific Procedures) Act 1986.
- Law requires researchers to follow principles of Three Rs and animal welfare.
- Animal research is only permitted if performed in ‘designated establishments’, under the remit of ‘project licences’ by researchers that have completed accredited training programmes to obtain a ‘personal licence’. Designation certificates and licences are controlled by the Home Office.
- Primates, cats, dogs and horses have extra protection as compared to other vertebrates.



Laboratory Animals (1997) 31, 116–124

Happy animals make good science

Trevor Poole

Universities Federation for Animal Welfare, 8 Hamilton Close, Potters Bar, Hertfordshire EN6 3QD, UK

Summary

In this paper the question is posed whether it is not only better for the animal to be happy, but whether its state of mind may also have the potential to influence the scientific results derived from it. To ensure good science, the animal should have a normal physiology and behaviour, apart from specific adverse effects under investigation. There is a growing body of evidence from a wide variety of sources to show that animals whose well-being is compromised are often physiologically and immunologically abnormal and that experiments using them may reach unreliable conclusions. On scientific, as well as ethical grounds, therefore, the psychological well-being of laboratory animals should be an important concern for veterinarians, animal technicians and scientists.

Data collection, data handling and publication: high-profile cases of fraud and questionable practice



Diederik Stapel



Marc Hauser

Guardian, Friday 14 September 2012

Research fraud forces psychology to take a hard look at itself



Revelations about fabricated data in the discipline throw new light on problems in scientific research, writes **Alok Jha**

Dirk Smeesters had spent several years of his career as a social psychologist at Erasmus University in Rotterdam studying how consumers behaved in different situations. Did colour have an effect on what they bought? How did death-related stories in the media affect how people picked products? And was it better to use supermodels in cosmetics adverts than average-looking women?

The questions are certainly intriguing, but unfortunately for anyone wanting truthful answers, some of Smeesters' work turned out to be fraudulent. The psychologist, who admitted "massaging" the data in some of his papers, resigned from his position in June after being investigated by his uni-

versity, which had been tipped off by Uri Simonsohn from the University of Pennsylvania in Philadelphia. Simonsohn carried out an independent analysis of the data and was suspicious of how perfect many of Smeesters' results seemed when, statistically speaking, there should have been more variation in his measurements.

The case, which led to two scientific papers being retracted, came on the heels of an even bigger fraud, uncovered last year, perpetrated by the Dutch psychologist Diederik Stapel. He was found to have fabricated data for years and published it in at least 30 peer-reviewed papers, including a report in the journal *Science* about how untidy environ-

ments may encourage discrimination.

The cases have sent shockwaves through a discipline that was already facing serious questions about plagiarism.

"In many respects, psychology is at a crossroads - the decisions we take now will determine whether or not it remains a serious, credible, scientific discipline along with the harder sciences," says Chris Chambers, a psychologist at Cardiff University.

"We have to be open about the problems that exist in psychology and understand that, though they're not unique to psychology, that doesn't

Continued on page 20 »

Questionable research practices in psychology

Table 1. Results of the Main Study: Mean Self-Admission Rates, Comparison of Self-Admission Rates Across Groups, and Mean Defensibility Ratings

Item	Self-admission rate (%)		Defensibility rating (across groups)
	Control group		
1. In a paper, failing to report all of a study's dependent measures	63.4		1.84 (0.39)
2. Deciding whether to collect more data after looking to see whether the results were significant	55.9		1.79 (0.44)
3. In a paper, failing to report all of a study's conditions	27.7		1.77 (0.49)
4. Stopping collecting data earlier than planned because one found the result that one had been looking for	15.6		1.76 (0.48)
5. In a paper, "rounding off" a <i>p</i> value (e.g., reporting that a <i>p</i> value of .054 is less than .05)	22.0		1.68 (0.57)
6. In a paper, selectively reporting studies that "worked"	45.8		1.66 (0.53)
7. Deciding whether to exclude data after looking at the impact of doing so on the results	38.2		1.61 (0.59)
8. In a paper, reporting an unexpected finding as having been predicted from the start	27.0		1.50 (0.60)
9. In a paper, claiming that results are unaffected by demographic variables (e.g., gender) when one is actually unsure (or knows that they do)	3.0		1.32 (0.60)
10. Falsifying data	0.6		0.16 (0.38)

Data collection, data handling and publication: apparently wide-spread questionable practices

Table 1 | Percentage of scientists who say that they engaged in the behaviour listed within the previous three years (n = 3,247)

Top ten behaviours	All	Mid-career	Early-career
1. Falsifying or 'cooking' research data	0.3	0.2	0.5
2. Ignoring major aspects of human-subject requirements	0.3	0.3	0.4
3. Not properly disclosing involvement in firms whose products are based on one's own research	0.3	0.4	0.3
4. Relationships with students, research subjects or clients that may be interpreted as questionable	1.4	1.3	1.4
5. Using another's ideas without obtaining permission or giving due credit	1.4	1.7	1.0
6. Unauthorized use of confidential information in connection with one's own research	1.7	2.4	0.8 ***
7. Failing to present data that contradict one's own previous research	6.0	6.5	5.3
8. Circumventing certain minor aspects of human-subject requirements	7.6	9.0	6.0 **
9. Overlooking others' use of flawed data or questionable interpretation of data	12.5	12.2	12.8
10. Changing the design, methodology or results of a study in response to pressure from a funding source	15.5	20.6	9.5 ***
Other behaviours			
11. Publishing the same data or results in two or more publications	4.7	5.9	3.4 **
12. Inappropriately assigning authorship credit	10.0	12.3	7.4 ***
13. Withholding details of methodology or results in papers or proposals	10.8	12.4	8.9 **
14. Using inadequate or inappropriate research designs	13.5	14.6	12.2
15. Dropping observations or data points from analyses based on a gut feeling that they were inaccurate	15.3	14.3	16.5
16. Inadequate record keeping related to research projects	27.5	27.7	27.3

Note: significance of χ^2 tests of differences between mid- and early-career scientists are noted by ** ($P < 0,01$) and *** ($P < 0,001$).

Reasons for scientific misconduct and questionable practices?

Sci Eng Ethics (2007) 13:437–461

DOI 10.1007/s11948-007-9042-5

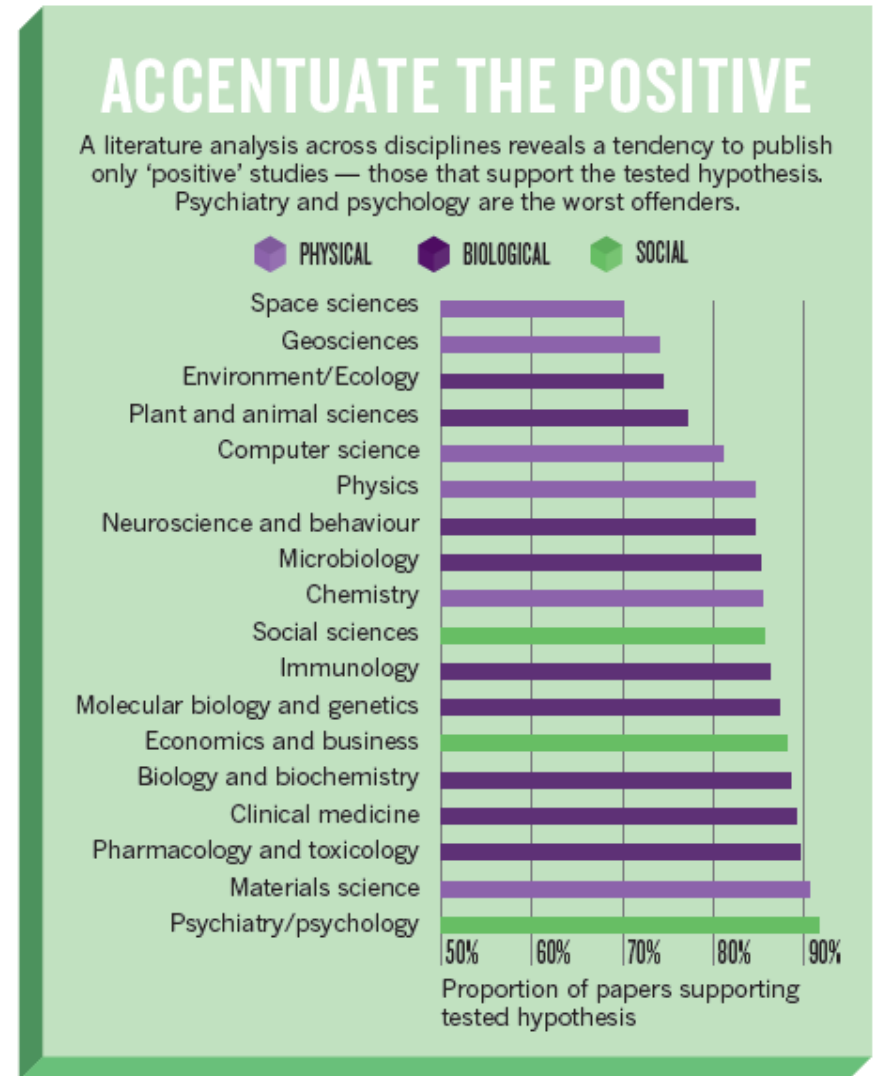
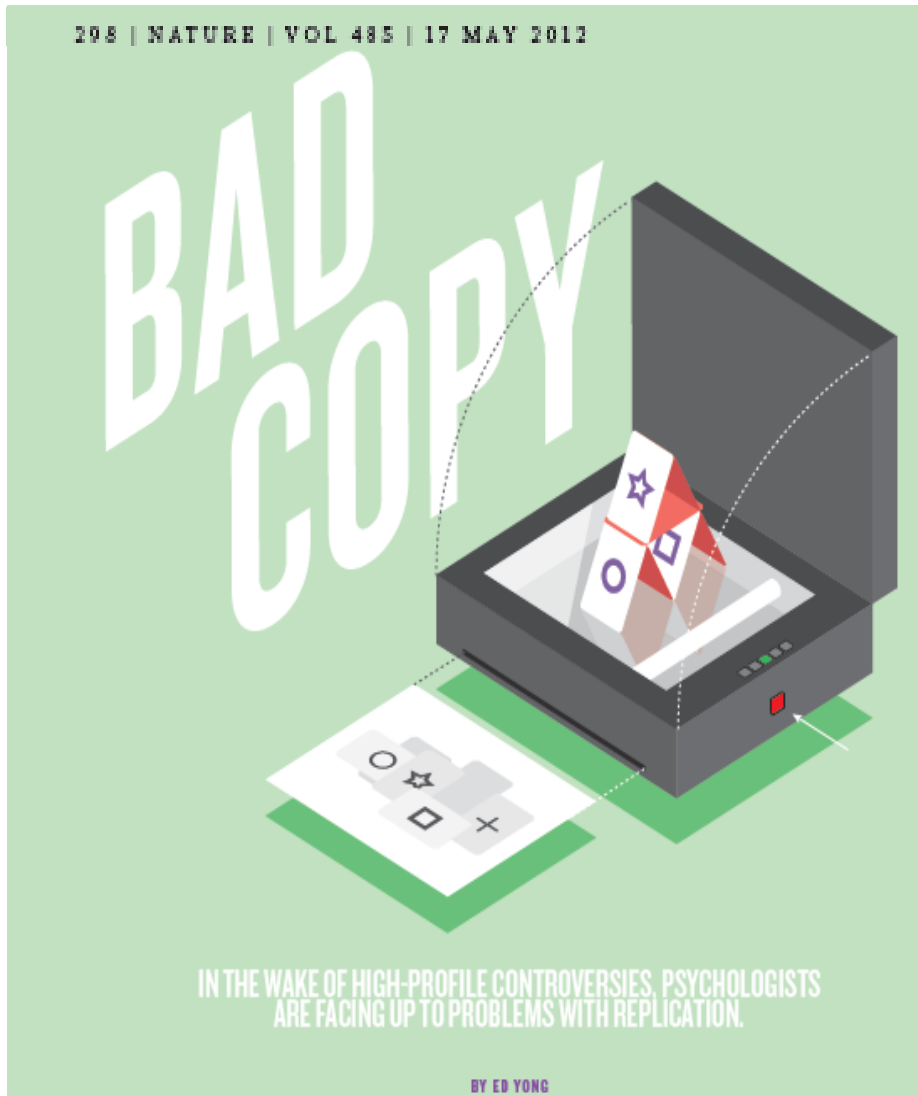
ORIGINAL PAPER

The Perverse Effects of Competition on Scientists' Work and Relationships

Melissa S. Anderson · Emily A. Ronning ·
Raymond De Vries · Brian C. Martinson

Abstract Competition among scientists for funding, positions and prestige, among other things, is often seen as a salutary driving force in U.S. science. Its effects on scientists, their work and their relationships are seldom considered. Focus-group discussions with 51 mid- and early-career scientists, on which this study is based, reveal a dark side of competition in science. According to these scientists, competition contributes to strategic game-playing in science, a decline in free and open sharing of information and methods, sabotage of others' ability to use one's work, interference with peer-review processes, deformation of relationships, and careless or questionable research conduct. When competition is pervasive, such effects may jeopardize the progress, efficiency and integrity of science.

Publication bias for positive and 'new' findings: problems with replication/falsification



E Yong (2012) Bad copy. Nature 485:298-300

Also compare:

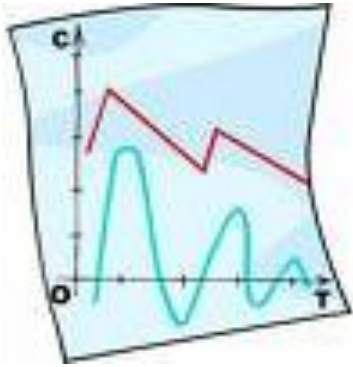
Open Science Collaboration (2015). Estimating the reproducibility of psychological science. Science, 349(6251), aac4716.

Data collection, data handling, publication: some guidelines



- Take pleasure in your research and in finding things out!
Take pride in and responsibility for any research you are involved in!

- All steps of data collection and treatment must be carefully documented (including problems, e.g. lost data).



- Data must be stored in such a way that they can be retrieved for later verification.

- ALL research results should be published whenever possible, so as to give an accurate and reliable account of findings and their reproducibility.



- Authorship implies:

- important contribution to planning, execution, or evaluation of research

- contribution to manuscript and approval of (i.e., responsibility for) final version

See 'Vancouver' criteria:

<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html#two>

Conflict of interest



Any situation in which financial or personal considerations have potential to compromise scientific or professional conduct.

Examples:

Researcher may financially benefit from specific research outcome.

Peer-reviewer wants to get research funded/published that is very similar to the one he/she assesses.

Peer-reviewer has personal relation to author or applicant.

Examiner has personal relation to examinee.

Financial conflicts of interest

Research psychiatrists who received consulting fees from companies whose drugs they were studying

Researcher	Industry Income Disclosed	Total Received	Status
Melissa DelBello , University of Cincinnati	about \$100,000 over 2 years	more than \$238,000 from AstraZeneca	UC has increased monitoring of DelBello's industry activities.
Joseph Biederman , Harvard/Mass General Hospital	about \$200,000 over 7 years	about \$1.6 million	MGH and Harvard are still reviewing, but Biederman agreed to suspend his industry-related activities in December 2008. Harvard is reviewing its conflicts policy.
Thomas Spencer , Harvard/Mass General Hospital	about \$200,000 over 7 years	about \$1 million	MGH and Harvard are reviewing.
Timothy Wilens , Harvard/Mass General Hospital	about \$200,000 over 7 years	about \$1.6 million	MGH and Harvard are reviewing.
Alan Schatzberg , Stanford	more than \$100,000	\$6 million in stock	Stanford says it knew the stock's value. Stanford's medical school soon plans to publicly disclose faculty members' industry ties but not dollar amounts.
Charles Nemeroff , Emory	\$1.2 million over 7 years	more than \$2.4 million	NIH suspended a \$9 million grant to Emory. The HHS Inspector General is investigating the case. Last December, Nemeroff stepped down from research and as department chair.
Zachary Stowe , Emory	not available	\$253,700 over 2 years from GSK for about 95 lectures	Emory told Stowe to eliminate his conflicts in April. The school recently banned promotional speaking.
Karen Wagner , University of Texas, Austin	about \$100,000 over 7 years	more than \$236,000	UT is reviewing.
Augustus John Rush , University of Texas, Southwestern	about \$600,000 over 7 years	more than \$600,000	Rush left UT for Singapore last August and is no longer being investigated, according to Grassley's staff.

J Kaiser (2009) Private money, public disclosure. Science 325:28-30

Which of the following recommendations is currently widely adopted in science and academia concerning industry collaboration?

- a) Academics should not collaborate with industry.**
- b) Academics collaborating with industry should suspend their teaching activities (and focus solely on research).**
- c) Academics should clearly declare their relevant links to industry when publishing or reviewing research.**
- d) None of the above.**

Declarations of conflicts of interest

Conflicts of interest are common. To minimize any negative impact, such conflicts should always be carefully considered and be dealt with openly.

Many academic journals and funding agencies require a 'declaration of commercial/financial conflicts of interest' from authors, applicants for funding, and peer reviewers.



Examples or Templates for Disclosure/ Conflict of Interest Statements for Manuscripts

Example #1

The authors declare that this work was funded by NIH00 and in part by XYZ Pharmaceutical Corporation.

The authors declare that over the past three years AM has received compensation from B Pharma and BC has received compensation from X Corporation, the manufacturer of (drug, device or other product mentioned in the work).

OR

Example #2

The author(s) declare that, except for income received from my primary employer, no financial support or compensation has been received from any individual or corporate entity over the past three years for research or professional service and there are no personal financial holdings that could be perceived as constituting a potential conflict of interest.

Public relations

Researchers are among us

Alfred Quest, 32, physicist

Researchers are not from another world. Come and meet them at a Researchers in Europe event near you.

Researchers in Europe 2005
A European initiative, June to November 2005
www.europa.eu.int/researchersineurope/

- Research is largely funded by the public, and researchers should strive to give the interested public access to research.

So, please go out and talk about your studies and research to members of the public!!!

- Problem: scientific knowledge is not easily accessible for lay persons, and there is huge potential for misunderstanding!

Misrepresentation of the outcomes of a dissertation project

Guardian,
Saturday 4
July 2009

Bad Science PR and prejudice: why rape story erred

Ben Goldacre



There is nothing like science for giving that objective, white-coat flavoured legitimacy to your prejudices, so it must have been a great day for Telegraph readers when they came across the headline: "Women who dress provocatively more likely to be raped, claim scientists."

Ah, scientists. "Women who drink alcohol, wear short skirts and are outgoing are more likely to be raped, claim scientists at the University of Leicester." Well there you go.

Oddly, though, the title of the press release for the same research was: "Promiscuous men more likely to rape." Normally we berate journalists for rewriting press releases. Had the Telegraph found some news?

I rang Sophia Shaw at the University of Leicester. She was surprised to have been presented as an expert scientist on the pages of the Daily Telegraph, as she is an MSc student, and this was her dissertation project. Also it was not finished. "My findings are very preliminary," she said.

She had been discussing her dissertation at an academic conference when the British Psychological Society's PR team picked it up, and put out the press release. We will discuss that later.

But first, the science. Shaw spoke to about 100 men, presenting them with "being with a woman", and asking them when they would "call it a night". The idea was to explore men's attitudes towards coercing women into sex.

"I'm very aware that there are limitations to my study. It's self-report data

about sensitive issues, so that's got its flaws, and participants were answering when sober, and so on," she said.

But more than that, she told me, every single one of the first four statements made by the Telegraph was an unambiguous, incorrect, misrepresentation of her findings.

Women who drink alcohol, wear short skirts and are outgoing are more likely to be raped? "This is completely inaccurate," Shaw said. "We found no difference whatsoever. The alcohol thing is also completely wrong: if anything, we found that men reported they were willing to go further with women who are completely sober."

And what about the Telegraph's next claim, or rather, the paper's reassuringly objective assertion, that it is scientists who claim that women who dress provocatively are more likely to be raped?

"We have found that people will go slightly further with women who are provocatively dressed, but this result is not statistically significant. Basically you can't say that's an effect, it could



When I saw the article my heart sank ... it made me really angry, given how sensitive this subject is



easily be the play of chance. I told the journalist it isn't one of our main findings, you can't say that. It's not significant, which is why we're not reporting it in our main analysis."

So who do we blame for this story, and what do we do about it?

Shaw said: "When I saw the article my heart sank, and it made me really angry, given how sensitive this subject is. To be making claims like the Telegraph did, in my name, places all the blame on women, which is not what we were doing at all. I just felt really angry about how wrong they'd got this study."

Since I started sniffing around, and since Shaw's complaint, the Telegraph has quietly changed the online copy of the article, although there has been no formal correction, and in any case, it remains inaccurate.

But there is a second, less obvious problem. Repeatedly, unpublished work, often of a highly speculative and eye-catching nature, is shepherded into newspapers by the press officers of the British Psychological Society, and other organisations.

A rash of news coverage and popular speculation ensues, in a situation where no one can read the academic work. In this case I could only get to the reality of what was measured, and how, by personally tracking down and speaking to an MSc student about her dissertation on the phone. In any situation this type of coverage would be ridiculous, but with a sensitive subject such as rape, it is blind, irresponsible foolishness.

<https://www.theguardian.com/commentisfree/2009/jul/04/bad-science-rape-study-telegraph>

Researchers not only have the responsibility to make their research accessible to the public, but must also take care that the research is not misrepresented!

Applying 'psychological' knowledge and expertise

Some examples for ethical challenges:

- Should psychological knowledge and expertise be used for market research and advertising?

- Should psychologists assist and advise on military interrogation?

See: <http://network.nature.com/groups/naturenewsandopinion/forum/topics/4759>

- Is 'cognitive enhancement' or modulation of memories desirable?

See: <http://network.nature.com/groups/naturenewsandopinion/forum/topics/3503>

- How to advise people suffering from 'psychological' problems?

Suggested reading and further information

E Yong (2012) Bad copy. Nature 485:298-300

BC Martinson, MS Anderson, R de Vries (2005) Scientists behaving badly. Nature 435:737-738

British Psychological Society, Ethical guidelines and support

<http://www.bps.org.uk/what-we-do/ethics-standards/ethics-standards>

Nuffield Council on Bioethics (2005) The ethics of research involving animals

<http://nuffieldbioethics.org/project/animal-research/>

Nottingham University, Code of Research Conduct and Research Ethics, Jan 2010

<http://www.nottingham.ac.uk/fabs/rgs/documents/code-of-research-conduct-and-research-ethics-approved-january-2010.pdf>

Committee on Science, Engineering, and Public Policy,

National Academy of Sciences, National Academy of

Engineering, and Institute of Medicine (2009) On being a scientist (3rd edition).

Freely available at: <http://www.nap.edu/catalog/12192.html>

Some questions to ponder

- What are the ethical issues concerning research involving humans and animals? How is such research regulated? Are current standards appropriate?
- How can I contribute to public understanding of science/psychological research?
- How could my psychological knowledge be applied – are there any ethical issues?
- What are the pros and cons with respect to close links between academia and industry?
- What are my responsibilities towards my research participants (information, debriefing)?
- Do I have appropriate standards with respect to my own research (e.g., in practicals, during internships and final year project)?