TITLE PAGE

Research Misconduct in Business and Management Studies:

Causes, Consequences and Possible Remedies

AUTHORS

Professor Dennis Tourish
University of Sussex
Sussex House, Falmer
Brighton, BN1 9RH
United Kingdom
Tel: 01273873201

Email: D.J.Tourish@sussex.ac.uk

Professor Russell Craig
University of Portsmouth
Faculty of Business and Law
Portland Street
Portsmouth, PO1 3DE
United Kingdom

Email: Russell.Craig@port.ac.uk

ABSTRACT

This article analyses 131 articles that have been retracted from peer-reviewed journals in business and management studies. We also draw from six in-depth interviews: three with journal editors involved in retractions; two with co-authors of papers retracted because a fellow author committed research fraud; and one with a former academic found guilty of research fraud. Our aim is to promote debate about the causes and consequences of research misconduct and to suggest possible remedies. Drawing on corruption theory, we suggest that a range of institutional, environmental and behavioural factors interact to provide incentives that sustain research misconduct. We explore the research practices that have prompted retractions. We contend that some widely-used, but questionable research practices, should be challenged so as to promote stronger commitment to research integrity and to deter misconduct. We propose eleven recommendations for action by authors, editors, publishers and the broader scientific community.

KEYWORDS: Questionable research practices, fraud, retraction

INTRODUCTION

'Questionable Research Practices' (QRPs) and blatant research fraud are attracting increased attention in the physical sciences and social sciences (Fanelli, Costas, & Larviere, 2015). More papers on more topics by more authors are being published in more journals than at any time in history. As a result, the scope for harm from wrongdoing is substantial and increasing (Banks, O'Boyle, Pollack, White, Batchelor, Whelpy, Abston, Bennett, & Adkins, 2016).

In this article, we explore the nature and impact of QRPs and research misconduct in the field of business and management studies, using corruption theory to aid analysis. We examine

131 scholarly articles that have been retracted from journals in the field of business and management studies. We assess the reasons for retraction, the clarity of retraction statements, the level of citations of retracted articles, and the prevalence of multiple retractions for any one author. We also use data from six interviews: three with journal editors involved in retractions, two with co-authors of papers retracted because of fraud committed by a fellow author, and one with an acknowledged serial fraudster. These interviews yielded contextually rich first-hand accounts of how research fraud is perpetrated, the pressures on editors, the effects on co-authors, and the rationalizations that have sustained research fraud and misconduct over time.

LITERATURE REVIEW

We view research misconduct as a form of corruption that is 'a wilful perversion of order, ideals, and, perhaps most important, trust' (Ashforth, Gioia, Robinson, & Trevino, 2008). Corruption thrives when strong institutional safeguards are absent, when individual rewards from engaging in corruption are high, and when the prospects of detection and punishment are low (Alam, 1995). The term 'corruption' is used increasingly to describe forms of research misconduct (e.g. Mumford, Antes, Beeler, & Caughron, 2009) that include over-reliance on corporate funding (Brownlea, 2015) and *p*-hacking to obtain statistically significant findings (Burns & Ioannidis, 2016; Hubbard, 2016). Generally, researchers use the term 'corruption' to include any example of fraud (Torsello & Venard, 2016). The idea of 'corruption' is also linked to 'moral collapse' because it 'involve(s) the degradation of values and ideas' (Shadnam & Lawrence, 2011, p. 380).

The literature on corruption helps us to explain the nature, incentives, motives, and consequences of research misconduct; provides a suitable lens to view the systemic pressures eroding longstanding ethical norms; and helps to highlight the institutional imperatives that often affect research practices (such as the keenness of universities to prioritise improving their

position in league tables). We begin by explaining the environmental, institutional and behavioural factors that interact to reinforce and underpin corruption in research.

Environmental, institutional and behavioural factors

Academic accountability is a common motivating feature of formal assessments of the quality of publications in national government-initiated research assessment exercises (such as the UK's Research Excellence Framework 2014). Traditionally, the authenticity of data in publications submitted in such quality assessments is taken on trust. Since an academic's job is largely autonomous, it is almost impossible to supervise in fine detail. Trust becomes a key condition of the research environment. However, the exercise of trust is conducive to the emergence of corruption (Chapman & Lindner, 2016).

The prospect of detecting research fraud is diminished by the widespread ineffectiveness of editorial vigilance and peer review. Most cases of data fraud are exposed by whistle-blowers, who are often journal subscribers or Ph.D students (Gross, 2016). They are frequently subject to intense pressure (including the threat of lawsuits) to withdraw their allegations, and many do so (Gross, 2016). Moreover, journals sometimes neglect to follow up adequately on problems that have been reported to them, as Arend (2017) shows in a case study involving the journal *Innovation Management Review*. Not surprisingly, many research environments therefore have a low probability of detection and exposure.

Public choice theory and agency theory stress the role that incentives play in promoting misconduct when individuals view the benefits likely to accrue to them as outweighing the costs of engaging in corrupt behaviour (Pillay & Kluvers, 2014). Such an approach is also consistent with rational crime theory (Becker, 1968), which proposes that a rational individual will weigh the possible benefits of a decision to commit a crime against what they perceive to be the costs of doing so. This approach has been used in an analysis of retractions in economics

(Cox, Craig and Tourish, 2018). Those who engage in such cost-benefit deliberations are likely to note that many research environments are skewed in favour of benefits rather than costs. That is, some research environments provide the means, motive and opportunity for individuals to commit research fraud and engage in QRPs. For example, Malaysia is one of several countries that provide bonuses for academic staff who publish in top journals (Chapman & Lindner, 2016). Such 'monetization' of business schools (Arend, 2017) produces clear incentives for unethical conduct.

Tensions regarding ethical research practice are manifest in universities where performance management systems stress the importance of achieving high profile outputs in prestigious journals. Such systems reward those who reach output targets and sanction those who do not (Craig, Amernic & Tourish, 2014). As competition for success intensifies, research expectations are invariably ratcheted upwards (Knights & Clarke, 2014). Ambitious goals are set that exhort individual researchers to publish in higher ranked journals, receive more external research funding, and help their university rise in research performance ranking tables.

Nonetheless, the single-minded pursuit of institutional goals of 'striving for excellence' gives rise to an ethical paradox: institutional urgings to publish, and publish well, risk incentivising forms of misconduct that will become normalised and embraced by wider groups or whole organizations (Pinto, Leana, & Pil, 2008). Organizational forces can have a negative influence on an individual's sense of morality, by hindering their ability to recognise that a moral issue exists, and by creating obstacles to acting in a moral or ethical manner (Jones & Ryan, 1998). A sense of 'bounded ethicality' may emerge, in which people are led astray irrespective of how well-intentioned they initially are (Kim, Monge, & Strudler, 2015).

In short, pre-existing values give way to more corrupt norms. The extent to which this occurs is also affected by the character of the individuals concerned. Some are more likely to be swayed by corrupt pressures than others. We should acknowledge that the more people

develop a single-minded focus on instrumental goals (such as securing publication in top journals) the more vulnerable they are to such a process and the more likely it is others will follow suit. Thus, within academia, there is an elevated risk of a 'contagion effect.' This can be described metaphorically as 'bad apples' (malpractising individuals) leading to 'bad barrels' (universities pursuing ethically poor research practices) and to 'bad orchards' (a national higher education research sector in which unethical practices have become normalised) (Burke, 2009).

Increasingly, academic conversations emphasize 'careerist, self-interested motivations for publishing' (Stone, 2015, p. 222). Many academics also now regard publishing as 'a game' in which publication mostly matters as 'hits' for CVs. Publication is of little intrinsic merit beyond that instrumental goal (Alvesson & Sandberg, 2014; Lorenz, 2014). Publication in top-tier outlets is perceived to bring career, status and financial rewards (Schminke, 2009; Lawrence, 2008). A logic of self-justification has emerged that impels some academic researchers to accept 'short-cuts' as an alluring alternative to the grind of theorising, data collection, and data analysis. Often, incentive, opportunity and pressure combine to produce forms of wrongdoing that are individually rational, but collectively and socially destructive (Bailey, 2015; Butler, Delaney, & Spoelstra, 2017).

Rationalization, routinization and mindlessness

The normalization and institutionalization of research misconduct gains traction when it is rationalized by the perpetrator(s) (De Klerk, 2017). In non-academic contexts, corrupt individuals tend not to view themselves as corrupt: typically, they reject the label 'criminal' (Ashforth & Anand, 2003). Likewise, academics who adopt QRPs and/or who engage in research fraud and misconduct are inclined to develop similar rationalizations, such as 'I don't commit fraud, I merely fudge data'. If researchers who engage in QRPs imagine that such practices are widespread, it is easy to understand how they could justify their behaviour as

'simply doing what everyone else is already doing.' Such justifications render outright research fraud more palatable. In this way, research misconduct becomes routinized — an outcome described as *mindlessness* by Kelman (1973). Such a state is useful for those intent on wrongdoing, since it subdues any 'inner voice' disturbed by what is occurring.

Research fraud and misconduct should not be attributed to the perverse personality of a few individuals. Clearly, what matters is 'the receptiveness of an individual to corruption and whether that receptiveness is triggered' (Graaf, 2007, p. 72). Mindful of this, we concur with Zyglidopoulos and Fleming (2009, p. 105) that 'the escalation of corruption (is) the result of interactions between agency and structure.' Thus, we view research misconduct as occupying a continuum from deviance (involving often minor violations of ethical norms by individuals) to corruption (in which serious, widespread and ongoing violations of previous norms become routinized and, in many cases, institutionalised). We also view rising levels of retraction of scholarly papers for fraud and misconduct as reflecting a perversion and marginalization of the purported primary purpose of academic activity – the disinterested pursuit of knowledge.

Elements of Research Misconduct

Falsification involves inaccurate presentation of research and includes misrepresentation of processes, omission of data, deletion of inconvenient results that contradict the 'story' being told, and 'reporting' studies that never took place (Banks et al., 2016). *Plagiarism* is the unattributed use of someone else's work to claim undue credit (Lewis, Duchac, & Beets, 2011). *Self-plagiarism* is the practice of authors recycling portions of their previous work without due acknowledgment (Bruton, 2014).

Two further practices, generally described as 'questionable' (*p*-hacking and HARKing), deserve greater critical scrutiny. *P-hacking* involves reporting only results that deliver a desired *p*-value; terminating a study when a desired *p*-value has been reached; dropping items from

survey instruments that prevent attaining 'desirable' *p*-values; and rounding off a *p*-value (for example, stating 0.054 as 0.05) (John, Loewenstein, & Prelec, 2012; Burns & Ioannidis, 2016). Through *p*-hacking, a statistically significant relationship can be found between even the most unlikely phenomena. For example, Hendry (1980) showed a significant relationship between levels of rainfall and inflation. Two major reasons why there should be greater concern about *p*-hacking are: first, it risks saturating the literature with false positives (Starbuck, 2016); and second, it results in some theories exercising a greater influence on scholarly debate than is warranted by their empirical foundations (Ferguson & Heene, 2012). To illustrate, an analysis of approximately 250 papers in psychology found that just over 10% reported incorrect *p*-values (Bakker & Wicherts, 2011). About 90% of the errors favoured the researchers' expectations and led to non-significant findings being reported as significant.

HARKing (Hypothesizing After the Results are Known) presents hypotheses as if they were developed *a priori* when in fact they have been developed after the results are known. This exaggerates the predictive power of the theories being studied (Starbuck, 2016). By improving researchers' prospects of obtaining statistically significant results 'management theories appear more effective than they are' (Schwab & Starbuck, 2017, p. 129). It increases the likelihood of Type 1 errors and the adoption of practices that are erroneously assumed to have obtained reliable scientific support (Garud, 2015). Thus, HARKing 'violates a fundamental ethical principle of science: the obligation to communicate one's work honestly and completely' (Kerr, 1998, p. 209).

Opinion is divided on HARKing. This is chiefly because it is frequently and inaccurately conflated with *Transparently* Hypothesising After the Results Are Known, or 'THARKing' (Hollenbeck & Wright, 2017), and doing so in the discussion section of papers. Openness is the key difference. THARKing is defensible because it adds value to theorising and ensures that accounts of the research process reflect what was actually done. HARKing, on the other

hand, transforms the 'Methods' sections of many papers at least partly into works of creative fiction rather than rigorous accounts of how the research was conducted. The author of a *mea culpa* article on 'the hypothesis that never was' confessed that 'what we wrote in the article was a lie' (Anonymous, 2015, p. 214). In our view, HARKing hinders theory falsification, reinforces the already strong bias of journals to publish only positive findings, and encourages deceptive research practices. That it is widely used is a poor defence.

Even the harshest critics of HARKing do not suggest it inflicts the same damage as fabricating data. But HARKing can have odious outcomes precisely because 'the success of small acts of corruption leads to more frequent and complex activities which … present a danger of corruption becoming endemic…' (Carreiro & Oliveira, 2015, p. 269). When dishonest behaviour is 'normalized' it then becomes contagious (Gino, Ayal, & Ariely, 2009). Tolerance of QRPs with a 'lower level' impact has a contagious effect in academic research because it renders further erosion of standards likely (Wager, 2009). This raises the question of how prevalent fraud and questionable research practices actually are.

STUDIES OF QUESTIONABLE RESEARCH PRACTICES

Only an estimated 0.02% of published papers are retracted across all disciplines each year (Van Noorden, 2011). The research summarized in Table 1 suggests that this estimate highlights problems of reporting and detection, rather than actual levels of misconduct. Bedeian, Taylor & Miller's (2010) study, for example, points to a widespread belief that QRPs are common. Much of the self-reported data in Table 1 also shows widespread approval (or at least tolerance of) *p*-hacking and HARKing. For example, about 90% of US management faculty respondents admitted to HARKing (Bedeian et al., 2010) and 24% reported engaging in self-plagiarism (Necker, 2014). Although the bulk of the data cited in Table 1 was sourced in Europe and the USA, more investigation of research integrity appears warranted in other countries (such as

Brazil, Russia, India and China) since they are the source of much of the growth in journal publications. Yet little is known about how their researchers view research ethics.

INSERT TABLE 1 ABOUT HERE

Table 2 summarises studies in other disciplines. Awareness of research misconduct engaged in by others (reaching 51% in a survey of biostatisticians by Ranstam, Buyse, George, & Lachenbruch, 2000) tends to be higher than self-reports. Generally, the incidence of self-reporting of research fraud and misconduct is much lower. However, a survey of 215 UK researchers across several disciplines, found that 17.9% admitted to using entirely invented data (Williams & Roberts, 2016). Self-reports of *p*-hacking are disturbing. 63.4% of respondents in a study of psychologists by John et al. (2012) admitted they did not report all dependent measures and 22% admitted to 'rounding off' statistical results.

The findings outlined in Tables 1 and 2 are a worrying indicator of the incidence of research fraud and misconduct across disciplines. If we assume that research in business and management studies is no worse or no better than other disciplines in terms of QRPs, this suggests that the poor practices highlighted above are much more common than the level of retractions would suggest. We now focus specifically on retracted articles in business and management studies journals.

METHOD

Our research questions are:

1. What is the frequency of retractions from scholarly journals in business and management studies?
2. What are the declared reasons for retractions, and how clear and explicit are these?
3. To what extent are particular individuals responsible for multiple retractions?

4. How do the experiences of editors, co-authors and an admitted fraudster, illuminate the pressures created by poor research practices?

To address these questions, we compiled a database of retracted journal articles in business and management by searching the *Business Source Complete* listing of peer reviewed journals, using the key search terms 'retraction' and 'retracted.' We found 554 papers with 'retraction' or 'retracted' in their title; and 7987 with 'retraction' or 'retracted' in their text. Through a systematic examination, we identified those papers that could be deemed as retractions from business and management journals. Many papers identified by this search included the word 'retraction' in their title as a technical expression that did not relate to article retraction. These were eliminated, as were retractions in non-management journals (e.g. *Drug Development & Industrial Pharmacy*). The *Chartered Association of Business Schools' Journal Guide* (2015) was also consulted to determine journals deemed to be in the field 'Business and Management Studies.' This Guide encompasses journals that cover 22 sub-disciplines in our field, including accounting, business history, human resources management, organization studies, innovation, finance, marketing and entrepreneurship. Retractions in journals of ambiguous provenance (and which did not feature in this list) were discarded. Consistent with Eden (2013), we viewed retractions as distinct from 'corrections' or 'expressions of concern' (where mistakes are corrected or problems are acknowledged, but a publication is not withdrawn from the scientific record).

The above process yielded a total of 129 retracted papers. Subsequently, we became aware of two further retracted papers in management and these were added to our database, bringing the total to 131. As with other studies of retractions, our search relied on computer-based search engines. Thus, the level of retractions before the turn of the century is likely to be underestimated since older retractions are less likely to register in searches, and may continue to be cited. However, given the breadth of journals covered by *Business Source Complete*, the

articles in our database seem likely to be representative of retractions in business and management studies, at least in the past decade. Note that retractions are on-going (particularly for some prolific offenders, discussed in the following text) and sometimes in rapid succession. Given the evolving nature of retractions, no database can ever be fully up to date.

We have profiled all retracted articles in terms of year of retraction, author(s), year published, number of *Google Scholar* citations, journal involved, Journal Impact Factor (JIF), journal Scimago quartile classification (Q1, Q2, Q3, Q4), and the principal reason for retraction. Additionally, we discuss the impact of some authors with multiple retractions. We also calculate the frequency with which each major form of research fraud and misconduct was implicated in retraction statements.

In addition, we conducted six open-ended interviews: three with journal editors, two with co-authors of papers retracted for fraud; and one with a prominent serial fraudster. The number and variety of interviews conducted satisfies criteria commonly applied in determining sample sizes (capacity to provide insight, identify new problems, lead to practical outcomes and preserve credibility) (Symon & Cassell, 2012). The semi-structured interviews explored the experiences of individuals with research misconduct, the consequences for them, and how and why they acted as they did. Accordingly, the questions explored the pressures on *editors* when issues of retraction are posed, the consequences for *co-authors* when research fraud leads to retraction, and the *modus operandi* of an *individual* who committed research fraud.

Questions asked of editors included: How did the idea of a problem with the paper arise? What was the role of the publisher? Did you feel supported? Has there been any legal action taken in respect of rogue articles you have retracted? Co-authors were asked such questions as: When did you first hear the allegations against X? What was your reaction at the time? What was the process leading up to retraction like for you and other co-authors? How did you find the actions of editors and professional associations? The serial fraudster interviewed was asked

to explain the fraudulent practices he undertook, describe how these were detected, detail the process undertaken by his university after allegations were made, and to reflect on his motivation in perpetrating fraud.

To encourage candour, we maintained the confidentiality of the editors and co-authors. This was important because knowledge of their identities would help to reveal the retractions they were discussing, and the identities of the authors involved. This could raise legal issues and would have inhibited our interviewees. The interviews with Editors A, B and C were of 50, 42 and 25 minutes, respectively, with transcripts of 7189, 6673 and 4295 words respectively. Interviews with Authors A and B were of 25 and 50 minutes, with transcripts of 3883 and 7621 words. The high-profile research fraudster interviewed was a former psychologist, Diederik Stapel (see Levelt Committee [2012] for an account of his activities). At the time of writing, Stapel had 58 retractions, including three from management journals. Given the intense scrutiny of his activities, and his authorship of a freely-available online book detailing his actions (Stapel, 2014), issues of confidentiality do not arise. This interview lasted 57 minutes and yielded a transcript of 7491 words.

Each interview transcript was returned to the relevant interviewee for checking. The checked transcripts were read closely by both authors, acting independently. They exchanged views in an iterative process until a consensus was reached on what text to draw upon to inform understanding of interviewee's personal predisposition, the institutional pressures (penalties and rewards) at play, and levels of scrutiny and monitoring of research work.

RESULTS

Table 3 provides details of the retracted papers. Fifty-eight retractions occurred within two years of publication. However, 18 papers were in the public domain for ten years or more before retraction. The retracted article with the most citations (593) was sole authored by

Lichtenthaler. This was published in the *Academy of Management Journal* — a journal with the highest JIF (6.448) of any in the database. Eighty-five papers were retracted by Scimago Q1 journals.

There are at least three plausible explanations for the large proportion of retractions in high quality journals. First, 'top' journals usually can detect problems more efficiently because they have more stringent submission and review procedures and a larger and more attentive readership. Second, the prospect of high quality journals receiving submissions containing instances of research misconduct is likely to be high because the prestige associated with publishing in those journals makes them an attractive target outlet, tempting authors to take shortcuts to enhance publication prospects. Third, given that misconduct is often drawn to the attention of journals by whistle-blowers (see earlier), high profile journals with a wide readership are likely to be studied more carefully by readers, who then contact editors to draw attention to problems.

INSERT TABLE 3 HERE

Multiple Retractions by Individuals

A few individuals had particularly high levels of retraction. Seven authors were responsible for 77 retracted papers. These authors had 96 co-authors and their retractions were from 36 separate journals. The interval (in years) between publication and retraction for the seven authors ranged from zero (a paper withdrawn in the year of publication) to 16. These data reveal the potential for a few scholars who engage in sustained fraud and other unethical practices, or who have made serious mistakes with data analysis, to have a damaging long-term impact. Delays in retracting highly flawed research compounds this problem, since it allows that work to continue to be cited.

Reasons for Retraction

Table 4 lists common reasons for retraction. Classifying these reasons was not straightforward. As Woolf (1991, p. 598) observes: 'for masterful obfuscation, it's hard to beat the wording of some retractions.' We designated 12 statements that failed to provide any clear reason for retraction as 'unclassified.' Some papers were retracted for more than one reason. Hence, there is a higher total of reasons in Table 4 (n = 154) than total retraction statements.

INSERT TABLE 4 HERE

The most frequent reason for retraction was data fraud (n=51). Typically, retraction statements citing this reason are terse: for example, 'This article contained evidence of fraud' (*Organizational Behavior & Human Decision Processes,* 2015, p. 190). They do not elaborate on the type of fraudulent behaviour involved.

Plagiarism was cited as the reason for retraction on 16 occasions. The non-detection of plagiarism prior to publication is initially surprising, given the availability of plagiarism detection software. However, a survey of journal editors who had retracted papers in business, management and economics found that 54% did not use any form of plagiarism detection software (Karabag & Berggren, 2016). This lack of verification is an institutional weakness that has similar effects to the non-scrutiny of data inputs. In addition, plagiarism software tends to raise concerns only when a written text exceeds a minimum threshold. Furthermore, it does not detect the plagiarism of ideas or interpretations. Thus, editors and reviewers often miss instances of plagiarism until these are exposed by attentive readers after a paper has been published.

Self-plagiarism (n=23) is a more frequent cause of retraction than plagiarism. A typical retraction notice states: 'We are now cognizant of a small portion of this article that appeared without citation… [this] constitutes a failure of the authors to properly cite [their] previously published material' (*Journal of Hospitality Marketing & Management*, 2015, p. 572).

Notices retracting five articles from *The Leadership Quarterly [LQ]* on the grounds of deficient data analysis were commendably stated in more depth than is commonplace. This is in stark contrast to the following vague retraction statement that is typical of many other journals: 'The article is retracted due to data errors in the reported empirical results, which form part of the basis for the conclusions drawn' (*Journal of Management Studies*, 2012, p. 1350.) In contrast *LQ's* individual retraction statements in 2014 ranged from 194 words to 747 words. All statements observed that 'the authors did not provide the original data,' suggesting that clearer statements of reasons for retraction could be made if data were available more readily. Each of the retraction statements concludes: 'As a consequence of the processes above, the scientific trustworthiness of this work cannot be established. However, intentional wrong doing should not be inferred.' Examination of the retraction statements and the original articles shows that the 'errors' arose from misapplication and misreporting of statistical tests in pursuit of acceptable *p*-values – that is, *p*-hacking. This defective work had considerable impact before being retracted by *LQ*. According to *Google Scholar*, at the time of writing, the number of citations of each paper ranged from 46 to 513, with a mean of 201 citations.

Detecting data analysis problems requires diligent scrutiny by reviewers and editors. This is difficult in an era where less time is available to spend on editing and reviewing papers, and any time so spent has a high opportunity cost (Macdonald & Kam, 2007). To emphasise the problem of inadequate scrutiny, Bohannon (2013) sent a fabricated manuscript containing unacceptable errors to 304 journals where poor review practices were suspected. 157 of them accepted the manuscript even where reviewers identified problems. While some of these were predatory open access journals, others were under the auspices of such reputable publishers as Sage and Elsevier. We should acknowledge that no journal, however prestigious, is immune to accepting papers with major analytical errors. Several top-tier journals have done so, including the *Journal of Organizational Behavior*, *Strategic Management Journal* and the *Journal of*

Management Studies. Close inspection is needed to identify what often appears, in retrospect, to be obvious problems.

Retractions of quantitative and qualitative papers

To explore the extent to which retractions afflict quantitative studies and qualitative studies, we downloaded the retracted papers from our database that remained publicly available. There were 101 of these, with 87 classified broadly as quantitative given the methodologies they employed. Despite the high proportion of quantitative papers in this sample, there is no reason to suppose that qualitative researchers are any less disposed to invent data, exaggerate sample sizes, or 'cherry pick' data than their quantitatively-oriented colleagues. Rather, it seems likely that the extent of research misconduct is under-represented in qualitative research. The fact that fewer qualitative papers are retracted is possibly due the continued dominance of positivist and quantitative methods in business and management journals; and the greater ease of detecting problems in quantitative papers because they usually follow precise analytical procedures.

We now turn to the perspectives of editors, co-authors and a research fraudster on these issues.

Editors' Perspectives

Editor A retracted papers for 'data analysis errors' but avoided describing this as research fraud. When asked about this, s/he responded:

> '… it's almost impossible to prove … [that] people have actually just made up data. ... But to say that data and analysis problems were intentional as opposed to just errors or sloppiness – I can't prove that … my job is to protect the integrity of the journal. … Typically [their university's] integrity officers get involved in this, conduct an investigation, and then they can determine whether or not an employee … engaged in misconduct. But that's not my job. My job as the editor is only to say whether or not this work merits publication in the journal.'

Research fraud is particularly difficult to prove when the research claims seem plausible. Editor B also spoke of an important institutional impediment to the detection of research fraud and misconduct – the reluctance of universities to pursue allegations of misconduct:

> 'We have had some authors, guilty of various forms of misconduct, of such severity that we have informed superiors at those institutions, whether it was supervisors, head of department, or higher. And in a distressingly large number, we've had no response, which might suggest they haven't taken it any further because they're embarrassed.'

All three editors mentioned the additional stress and time consumed by the possibility of legal action. Editor A commented that:

> '…the authors … tried to appeal to my sense of friendship, my sense of … You know, this is going to be bad for the journal … bad for you … bad for the authors. Can't we find another way around this that doesn't require retraction? … Then when the personal appeals didn't work, they [used] every other trick in the book. They sent me letters from lawyers, they personally attacked me… The best was … when it started getting really clear that these papers … were going to be retracted. An author … emailed my dean and my provost and said that I needed to be investigated… I dreaded waking up in the morning … Every day for over a year...'

Editors also felt a weight of responsibility, and a duty of care, to authors who might have made an unintentional mistake. According to Editor C:

> 'It weighs on you, because everyone thinks "oh it's easy, find some form of plagiarism" and slam the person. But, you realise maybe it was a mistake, and maybe if it was a mistake, a harmless mistake, you're going to crush a person's career and their life… you could put yourself in the position, what if I made an innocent mistake? My life would be over.'

Co-authors' perspectives

While retraction statements often exonerate co-authors, exoneration does not occur until the end of what is usually an arduous, lengthy and traumatic process. Co-authors experience a high level of stress, combined with a personal sense of betrayal and reputational harm arising from dealing with investigations to determine whether they were implicated. Here we cite co-author A:

> 'The initial allegations, which turned out to be true, were that X's sample-size … was larger than the available population. … those [allegations] were posted anonymously on Y website… My initial reaction was … There's just no way this could be true. I publicly posted … to that effect… it was horrifying … Probably *the* [emphasis of interviewee] low point of my career … I go talk to my dean. He says you've got to go talk to the university attorney.'

Co-author B shared similar experiences and highlighted a warning sign of developing research fraud:

> 'S/he basically invited me to become his/her co-author on this great data and I thought, wow, this is so great, how can I say no? … But s/he told me, "you have to realise this is of course highly confidential, I will not even be able to share the name of the (contact) firm even with you and so we have to be very careful. I am signing all these confidentiality agreements here." I thought, yes, I'm fine with that ... as long as we can get access to this fantastic data.'

The experience of co-author B suggests that prospective authors need to be more sceptical when presented with unusually convenient access to (almost unbelievably) good data sets, particularly if the access is shrouded in 'confidentiality.' The need for scepticism is intensified in an environment in which journals do not subject data inputs to rigorous scrutiny. Co-author B spoke of the high stress engendered by suspicion and investigation, and used the word 'panic' to describe his/her emotions. Exoneration was never certain, and if it occurred, there was a strong chance it would be only partial.

Co-author A also alluded to the reluctance of journals to thoroughly investigate the possibility of research fraud in all papers of an author with a track record of this practice. S/he

was the co-author of three papers that were retracted because of fabricated data. S/he was also a co-author of two other papers with this individual and was perplexed that these remained in circulation. The journal that had not retracted these two papers is highly ranked but had failed to investigate. As with this case, many papers containing fraudulent data are likely to remain in circulation, be cited, and influence the direction of other research work.

A Fraudster's Perspective

Stapel is unique among research fraudsters because of his willingness to discuss his actions. He described his *modus operandi* as follows:

> 'I had … a hypothesis … to publish this I needed say three or four experiments to … verify or support the … hypothesis. I just made everything up … I didn't go out and actually collect data. I didn't interview people or give them questionnaires or sit them behind a computer. Which is the total hoax ... you just make up the experiments and the results.'

Stapel clearly availed himself of the obstacles to the detection of research fraud that persist in the research environment (e.g., the practice of not making research data available prevented close inspection of his findings). He described his 'hoax' as follows:

> 'You have a theory ... You have an idea what the next step … should be. You do the experiment, you collect the data. But not everything fits with the theory. … you leave out the things that don't fit. So say you did five experiments and four "worked" … mean[ing] that they verified the hypothesis… I left out the experiment that didn't work … just only reported the four experiments that did work.'

Stapel is describing *p*-hacking. His self-description is consistent with the interpretations others have made of his actions. Stroebe, Postmes, & Spears (2012, p. 676) commented that:

> '… people like Stapel probably start by slightly altering their data to make them statistically significant or to make them fit their hypotheses even better. … Once they score early successes and become known as highly promising researchers they have to keep on publishing at a high rate in top journals to meet these high expectations. If studies do not

> work out at all, they have to make greater and greater changes to their data, until they decide to abandon data collection and to invent the total data set.'

There are many biases in favour of publishing only positive findings. Nuzzo (2015, p. 183) describes this as 'hypothesis myopia.' Antonakis (2017, p. 7) calls it the 'disease' of 'significosis.' Leung (2011) reported that the hypotheses in 54 papers in the *Academy of Management Journal* were supported in 73% of papers. We analysed 50 randomly selected papers in *Administrative Science Quarterly* that offered hypotheses. 90% of the hypotheses proposed were either partially or fully confirmed. In such a climate, research fraud may be a tempting 'solution' to the implacable demand for positive results.

Stapel also suggested that his activities were prompted partly by the systems, culture and performance expectations within which academics work – that is, by the institutional factors that drive universities to reward success while penalising failure:

> 'You start as a curious, enthusiastic, smart researcher … try[ing] to do your best… You are talented and you are working in a big, nice group ... Then you become aware of the culture in the group … you see that only positive results are published and you see how science works [is]… also about communication, marketing, publishing, getting grants or making money to make a living … [you soon think] …. Okay, I just need to do this… I better publish more papers … it becomes sort of detachment from my scientific or curious self and … [I become] a robot or a marketing person.'

RECOMMENDATIONS

Flowing from the analysis above, we make eleven recommendations that are directed to authors, journal editors and publishing houses, and the broader academic community. These recommendations seek to address the environmental, institutional and behavioural factors that are complicit in nurturing research fraud and questionable research practices.

Recommendations to Authors

1. Maintain proper data collection records

Many retraction statements, such as those from LQ, noted that authors were unable or unwilling to provide original data because the data had been lost. This reduces data to the status of misplaced sunglasses. In an era of digital information storage, authors should be obliged by journals to retain all data for a period of at least three years. We also believe that if questions are asked about data veracity, the data should then be made available for further analysis. The understandable proprietary attitude of academics to data should be superseded by an obligation to demonstrate ethical research practices by lodging data in a way that facilitates inspection, re-analysis and replication. This would include providing details of any relevant software commands or syntax that were used to produce the reported results. The burden of proof regarding data authenticity and analysis needs to shift from those with questions to those who produce the results (Clark, 2017). This would act as a bulwark against the perpetration of data fraud, or poor analysis, and enable journals to give clearer justifications for retractions.

2. *Clarify responsibility for data collection*

The interview data show that determining responsibility for research fraud is a fraught and stressful process for editors and authors. To require each author of multi-authored papers to be fully responsible for every aspect of the work, including data collection, would be debilitating. However, some leading journals, such as the *Journal of Accounting Research* [*JAR*], now require clear identification of the authors responsible for data collection and management, description of how data were obtained, and statements regarding which author(s) can confirm data authenticity (see http://onlinelibrary.wiley.com.ezproxy.canterbury.ac.nz/journal/10.1111/(ISSN)1475-679X/homepage/ForAuthors.html). We suggest that *JAR*'s protocols become standard practice in respect of all papers submitted in business and management studies. This would compel co-

authors to be more interested in the authenticity of data, and enable investigations of data fraud to focus closely on the sources of suspected problems.

3. *Specify all statistical analyses that were conducted*

Authors should divulge this information to enable readers to more accurately assess the results of the analyses reported. This would also encourage authors to engage in THARKing rather than HARKing.

Recommendations to Journal Editors and Publishing Houses

4. *Require journals to make clearer statements of reasons for retraction*

Twelve papers in our database were retracted with no clear reason provided. This serves no obvious academic interest. Rather, it occludes the prevalence of research misconduct and prevents other scholars learning from what has gone wrong. Clearer disclosures of reasons for retraction should be provided, as Cox et al (2018) have argued. Failing to do so may protect the reputation of offenders and ensure they are free to continue publishing. The International Committee of Medical Journal Editors' (ICMJE) policy on 'Scientific Misconduct, Expressions of Concern, and Retraction' merits widespread consideration. It states:

> 'The text of the retraction should explain why the article is being retracted and include a complete citation reference to that article. Retracted articles should remain in the public domain and be clearly labelled as retracted.' (http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/scientific-misconduct-expressions-of-concern-and-retraction.html)

5. *Investigate the whole body of work of authors who have papers retracted for fraud*

Our database contains multiple retractions from serial offenders who nevertheless still have many other papers in the public domain. A mandatory review of the entire body of published work of an author found guilty of research fraud in more than one paper should be conducted

by publishing houses and scholarly academies to help identify whether the author's other papers are fraudulent.

6. Develop clearer rules for disclosure of penalties and conflicts of interest

We suggest that journals should insist on full disclosure of any consulting relationships between authors and business interests. Non-disclosure of such relationships is unethical and likely to enhance the bias in favour of publishing only positive results. Such bias encourages egregious forms of *p*-hacking. It would be beneficial if business and management studies journals adopted an approach similar to that of the American Economic Association:

'Each author of a submitted article should identify each interested party from whom he or she has received significant financial support, summing to at least $10,000 in the past three years, in the form of consultant fees, retainers, grants and the like.' (See the full statement at https://www.aeaweb.org/aea_journals/AEA_Disclosure_Policy.pdf.)

7. Label all retracted papers as 'retracted'

The failure to clearly mark retracted papers as 'retracted' contributes to the continued citation of defective work. There are 18 such papers in our database. By the time this paper is published they will most likely have accumulated even more citations than they currently have. As a condition of being listed as a signatory to COPE's guidelines, journals should be required to clearly label all pages of all retracted papers as 'retracted'.

Recommendations to the Broader Academic Community

8. Redefine p-hacking as a deceptive research practice

P-hacking contributes to the bias in favour of publishing only positive results, favours the prior interpretations of authors, produces unreliable knowledge, and contributes to a 'reproducibility crisis' in academic research (Baker, 2016). There needs to be greater recognition that *p*-hacking constitutes a fundamental distortion of data, often amounts to outright misrepresentation, and is tantamount to misconduct. Relabelling it as a 'deceptive research practice' rather than one

that is merely ‘questionable’ would encourage a shift in mind-sets away from condoning its use. This leads to our next recommendation.

9. Substitute the term ‘deceptive research practice’ for ‘questionable research practices’

Greater use of the term ‘deceptive research practice’ would send a much less ambiguous message about research integrity to the academic community. This would help reverse the drift to the normalization of research misconduct. Greater use of the adjective ‘deceptive’ offers a clearer way of communicating the unacceptability of practices that have become far too common (such as *p*-hacking and HARKing).

10. Develop research misconduct policies

Resnik, Rasmussen, & Kissling (2015) found that 22 of the top 40 research-active countries had research misconduct policies. Encouragingly, other countries are following suit. While US universities generally have Research Integrity Officers, this is not standard practice elsewhere. This absence of research misconduct policies hinders the detection of academic wrongdoing and produces inconsistencies in how it is treated. Explicit research misconduct policies should be developed to provide a point of access for whistle-blowers and to make it harder for allegations of misconduct to be ignored. This would further reduce the possibility of research misconduct being ignored in order to avoid institutional naming and shaming.

11. Strengthen the education of PhD students to include more explicit, detailed and frequent consideration of poor research practices and the need for ethical research

In Tables 1 and 2 we cited studies which showed that PhD students often observe poor research practices. If these are copied by students during their training and they continue with defective practices, they risk damaging the quality of future research and the derailment of their careers if detected. We need stronger training in what are appropriate and ethical research methods at this early stage of their careers. Of necessity, this should include more explicit reflection on the perils of such practices as *p*-hacking and HARKing than is present at the moment.

CONCLUSION

Academics should be encouraged to be committed to research of the highest integrity (Adler & Hansen 2012). This means focusing afresh on the motivations of disinterested inquiry and curiosity that are the mainstay of good research, rather than seeing research mainly in terms of career advancement and publication as ‘a game’ that we play to that end. It would , we believe, strengthen our collective commitment to research integrity and help to prevent research from becoming a corrupt game that damages the scholarly community and, ultimately, our wider society.

REFERENCES

Abdulai, A. (2009). Political will in combating corruption in developing and transition economies: A comparative study of Singapore, Hong Kong and Ghana. *Journal of Financial Crime*, 16: 387 – 417.

Adler, N., & Hansen, H. (2012). Daring to care: Scholarship that supports the courage of our convictions. *Journal of Management Inquiry, 21,* 128-139.

Agnoli, F., Wicherts, J., Veldkamp, C., Albiero, P., & Cubelli, R. (2017). Questionable research practices among Italian research psychologists, *PLOS/One 12*, doi:10.1371/journal.pone.0172792

Alam, M. (1995). A theory of limits on corruption and some applications, *Kyklos,* 48, 419-435.

Alvesson, M., & Sandberg, J. (2014). Habitat and habitus: Boxed-in versus box-breaking research. *Organization Studies*, *35,* 967-987.

Anonymous (2015). The case of the hypothesis that never was: Uncovering the deceptive use of post-hoc hypotheses, *Journal of Management Inquiry, 24,* 214-216

Antonakis, J. (2017). On doing better science: From thrill of discovery to policy implications. *The Leadership Quarterly*, *28*, 5-21.

Arend, R. (2018). The unethical monetization of Business Schools (and what we can do about it), *Journal of Management Inquiry, 27,* 96-100.

Arend, R. (2017). Conflicts of interest as corrupting the checks and balances in the postpublication oversight of academic business journals, *Journal of Management Inquiry*, DOI: 10.1177/1056492617715323.

Ashforth, B., & Anand, V. (2003). The normalization of corruption in organizations. *Research in Organizational Behavior, 25*, 1-52.

Ashforth, B.E., Gioia, D.A., Robinson, S.L., & Trevino, L.K. (2008). Introduction to special topic forum: Re-viewing organizational corruption. *Academy of Management Review, 33,* 670-684.

Bailey, C. (2015). Psychopathy, academic accountants' attitudes toward unethical research practices, and publication success. *The Accounting Review, 90,* 1307-1332.

Bailey, C., Hasselback, J., & Karcher, J. (2001). Research misconduct in accounting literature: A survey of the most prolific researchers' actions and beliefs. *Abacus, 37,* 26-54.

Baker, M. (2016). Is there a reproducibility crisis? *Nature, 533(7604),* 452-454.

Bakker, M., & Wicherts, J.M. (2011). The (mis) reporting of statistical results in psychology journals. *Behavior Research Methods, 43,* 666-678.

Banks, G., O'Boyle, E., Pollack, J., White, C., Batchelor, J., Whelpy, C., Abston, K., Bennett, A., & Adkins, C. (2016). Questions about questionable research practices in the field of management: A guest commentary. *Journal of Management, 42,* 5-20.

Becker, G., (1968). Crime and punishment: An economic approach. *Journal of Political Economy, 76,* 169-217.

Bedeian, A., Taylor, S., & Miller, A. (2010). Management science on the credibility bubble: cardinal sins and curious misdemeanours. *Academy of Management Learning & Education, 9,* 715-725.

Bohannon, J. (2013). Who's afraid of peer review? *Science, 342(6154):* 6065.

Brownlea, J. (2015). The corporate corruption of academic research. *Alternative Routes: A Journal of Critical Social Research, 26,* 23-50.

Bruton, S. (2014). Self-plagiarism and textual recycling: Legitimate forms of research misconduct. *Accountability in Research, 21,* 176-197.

Burke, R. (2009). Introduction: Corruption in organizations: Causes, consequences and choices. In R. Burke and C. Cooper (Eds.) *Research Companion to Corruption in Organizations* (pp.1-30), Cheltenham, UK: Edward Elgar.

Burns, S.B., & Ioannidis, J.P.A. (2016). *p*-Curve and *p*–hacking in observational research. *PLOS.One* http://dx.doi.org/10.1371/journal.pone.0149144 (February 17).

Butler, N., Delaney, H., & Spoelstra, S. (2017). The grey zone: Questionable research practices in the business school. *Academy of Management Learning & Education, 16,* 94–109.

Carreiro, P., & Oliveira, J. (2015). A functional analysis of corruption from a behavioural-economic perspective. In G. Foxall (Ed.) *The Routledge Companion to Consumer Behavior Analysis* (pp.258-271), London: Routledge.

Chapman, D., & Lindner, S. (2016). Degrees of integrity: The threat of corruption in higher education. *Studies in Higher Education, 41,* 247-268.

Clark, T. (2017). Science, lies and video-taped experiments. *Nature, 542, 139* (9 February).

Cossette, P. 2004. Research integrity: An exploratory survey of administrative science faculties. *Journal of Business Ethics, 49,* 213–234.

Cox, A., Craig, R., & Tourish, D. (2018). Retraction statements and research misconduct in economics, *Research Policy, 47,* 924-935.

Craig, R., Amernic, J., & Tourish, D. (2014). Perverse audit culture and accountability of the modern public university. *Financial Accountability & Management, 30,* 1-24.

De Klerk, J. (2017). "The Devil made me do it!" An inquiry into the unconscious "Devils within" of rationalised corruption. *Journal of Management Inquiry, 26,* 254-269.

Eastwood, D., Derish, P., Leash, E., & Ordway, S. (1996). Ethical issues in biomedical research: Perception and practices of postdoctoral research fellows in responding to a survey. *Science and Engineering Ethics, 2,* 89-114.

Eden, L. (2013). Retraction: Mistake or misconduct? The ethicist blog. *Academy of Management*, http://ethicist.aom.org/2013/10/retraction-mistake-or-misconduct/.

Fanelli, D. (2009). How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. *PLoS ONE 4:e5738*, doi:10.1371/journal.pone.0005738.

Fanelli, D., Costas, R., & Larviere, V. (2015). Misconduct policies, academic culture and career stage, not gender or pressure to publish, affect scientific integrity. *PLoS ONE, 10(6):* e0127556. doi:10.1371/journal.pone.0127556.

Ferguson, C., & Heene, M. (2012). A vast graveyard of undead theories: Publication bias and psychological science's aversion to the null. *Perspectives on Psychological Science*, 7, 555-561.

Fraser, H., Parker, T., Nakagawa, S., Barnett, A., & Fidler, F. (2018). Questionable research practices in ecology and evolution, *Open Science Framework*, doi: osf.io/ajyqg.

Garud, R. (2015). Eyes wide shut? A commentary on the hypothesis that never was. *Journal of Management Inquiry, 24*, 450-454.

Gino, F., Ayal, S., & Ariely, D. (2009). Contagion and differentiation in unethical behaviour. *Psychological Science, 203*, 393-398.

Graaf, G. (2007). Causes of corruption: Towards a contextual theory of corruption. *Public Administration Quarterly, 31*, 39-86.

Gross, C. (2016). Scientific misconduct. *Annual Review of Psychology, 67*, 4-19.

Hendry, D. (1980). Econometrics – Alchemy or science? *Economica, 47*, 387-406.

Hollenbeck, J., & Wright, P. (2017). Harking, Sharking and Tharking: Making the case *for* post hoc analysis of scientific data. *Journal of Management Inquiry, 43*, 5-18.

Honig, B., & Bedi, A. (2012). The fox in the hen house: A critical examination of plagiarism among members of the Academy of Management. *Academy of Management Learning & Education, 11*, 101-123.

Hubbard, R. (2016). *Corrupt Research.* London: Sage.

John, L., Loewenstein, G., & Prelec, D. (2012). Measuring the prevalence of questionable research practices with incentives for truth telling. *Psychological Science, 23,* 524–532.

Jones, T., & Verstegen Ryan, L. (1998). The effect of organizational forces on individual morality: Judgment, moral approbation, and behavior. *Business Ethics Quarterly, 8,* 431-445.

Kalichman, M., & Friedman, P. (1992). A pilot study of biomedical trainees' perceptions concerning research ethics. *Academic Medicine, 67,* 769-775.

Karabag, S., & Berggren, C. (2016). Misconduct, marginality and editorial practices in management, business and economics journals. *PLoS ONE, 11,* e0159492, doi.org/10.1371/journal.pone.0159492.

Kelman, H. (1973). Violence without moral restraint: Reflections on the dehumanization of victims and victimizers. *Journal of Social Issues,* 29, 25–61.

Kerr, N. (1998). HARKing: Hypothesizing after the results are known. *Personality and Social Psychology Review, 2,* 196-217.

Kim, T., Monge, R., & Strudler, A. (2015). Bounded ethicality and the principle that "ought" implies "can." *Business Ethics Quarterly, 25,* 341-361.

Knights, D., & Clarke, C. (2014). It's a bittersweet symphony, this life: Fragile academic selves and insecure identities at work. *Organization Studies, 35,* 335–357.

Lawrence, P. (2008). Lost in publication: How measurement harms science. *Ethics in Science and Environmental Politics*, *8,* 9-11.

Leung, K. (2011). Presenting post-hoc hypotheses as a priori: Ethical and theoretical issues. *Management and Organization Review* 7(3): 471-479.

Levelt Committee, Noort Committee, Drenth Committee. (2012). *Flawed Science: The Fraudulent Research Practices Of Social Psychologist Diederik Stapel,*

http://pubman.mpdl.mpg.de/pubman/item/escidoc:1569964:7/component/escidoc:1569966/Stapel_Investigation_Final_report.pdf.

Lewis, B., Duchac, J., & Beets, S. (2011). An academic publisher's response to plagiarism. *Journal of Business Ethics, 102,* 489–506.

Lorenz, C. (2014). Fixing the facts: the rise of the New Public Management, the metrification of "quality" and the fall of the academic professions. *Moving the Social, 52,* 5-26.

Macdonald, S., & Kam, J. (2007). Ring a ring o'roses: Quality journals and gamesmanship in management studies."*Journal of Management Studies, 44,* 640-655.

Misangyi, V., Weaver, G., & Elms, H. (2008). Ending corruption: The interplay among institutional logics, resources, and institutional entrepreneurs. *Academy of Management Review,* 33: 750-770.

Mumford, M., Antes, A., Beeler, C., & Caughron, J. (2009). On the corruption of scientists: The influence of field, environment, and personality. In R. Burke and C. Cooper (Eds.) *Research Companion to Corruption in Organizations* (pp.145-170), Cheltenham, UK: Edward Elgar.

Necker, S. (2014). Scientific misbehavior in economics. *Research Policy, 43,* 1747-1759.

Nuzzo, R. (2015). Fooling ourselves. *Nature, 526,* 182-185.

Pillay, S., & Kluvers, R. (2014). An institutional theory perspective on corruption: The case of a developing democracy. *Financial Accountability & Management, 30,* 95-119.

Pinto, J., Leana, C., & Pil, F. (2008). Corrupt organizations or organizations of corrupt individuals? Two types of organization-level corruption. *Academy of Management Review, 33,* 685-709.

Pupovac, V., & Fanelli, D. (2015). Scientists admitting to plagiarism: A meta-analysis of surveys. *Science and Engineering Ethics, 21,* 131-1352.

Ranstam, J., Buyse, M., George, S.L., & Lachenbruch, P. (2000). Fraud in medical research: an international survey of biostatisticians. *Controlled Clinical Trials, 21,* 415-427.

Resnik, D., Rasmussen, L., & Kissling, G. (2015). An international study of research misconduct policies. *Accountability in Research, 22,* 249–266.

Schwab, A., & Starbuck, W. (2017). A call for openness in research reporting: How to turn covert practices into helpful tools. *Academy of Management Learning & Education, 16,* 125–141.

Shadnam, M., & Lawrence, T.B. (2011). Understanding widespread misconduct in organizations: An institutional theory on moral collapse. *Business Ethics Quarterly, 21,* 379-407.

Stapel, D. (2014). *Faking Science: A True Story of Academic Fraud.* Trans. N. Brown, Available at http://nick.brown.free.fr/stapel/FakingScience-20141214.pdf.

Starbuck, W. (2016). How journals could improve research practices in social science. *Administrative Science Quarterly, 61,* 165-183.

Stone, D. (2015). Post-Hunton: Reclaiming our integrity and literature."*Journal of Information Systems, 29,* 211-227.

Stroebe, W., Postmes, T., & Spears, R. (2012). Scientific misconduct and the myth of self-correction in science. *Perspectives on Psychological Science, 7,* 670-688.

Symon, G., & Cassell, C. (2012). Assessing qualitative research, In G. Symon & C. Cassell (Eds.) *Qualitative Organizational Research: Core Methods and Current Challenges* (pp. 204-223), London: Sage.

Swazey, J., Anderson, M., & Louis, K. (1993). Ethical problems in academic research. *American Scientist, 81,* 542-553.

Titus, S. (2014). Evaluating U.S. medical schools' efforts to educate faculty researchers on research integrity and research misconduct policies and procedures. *Accountability in Research, 21,* 9-25.

Titus, S., Wells, J., & Rhodes, L. (2008). Repairing research integrity. *Nature, 19 (453),* 980-982.

Torsello, D., & Venard, B. (2016). The anthropology of corruption. *Journal of Management Inquiry, 25,* 34-54.

Van Noorden, R. (2011). The trouble with retractions. *Nature, 478,* 26-28.

Wager, E. (2009). Recognition, reward and responsibility: Why the authorship of scientific papers matters. *Maturitas, 62,* 109-112.

Williams, J., & Roberts, D. (2016). Academic integrity: Exploring tensions between perception and practice in the contemporary University. *University of Kent: Society for Research into Higher Education.*

https://www.srhe.ac.uk/downloads/WILLIAMSJoannaROBERTSDavid.pdf

Wilson, K., Schreier, A., Griffin, A., & Resnik, D. (2007). Research records and the resolution of misconduct allegations at research universities. *Accountability in Research, 14,* 57-71.

Woolf, P. (1991). Accountability and responsibility in research. *Journal of Business Ethics, 10,* 595-600.

Zyglidopoulos, S., & Fleming, P. (2009). The escalation of corruption in organizations. In R. Burke and C. Cooper (Eds.) *Research Companion to Corruption in Organizations,* (pp.104-120), Cheltenham, UK: Edward Elgar.

Table 1: Reported Frequencies of Fraud and Questionable Research Practices in Business and Management Studies

QRP	Sources	Method, Data, Location (survey unless specified otherwise)	Results
General	Bedeian et al. 2010	438 mgmt faculty, 104 colleges: US	73% reported knowledge of QRPs in previous year.
Data fraud	Hoover & Hopp 2017	1215 mgmt faculty: INT	9.2% of editors (18 respondents) sometimes encountered falsified data; 3.8% of reviewers (29 respondents) reported the same.
	Bailey et al. 2001	107 highly published accounting researchers: INT	3.7% reported engaging in data fraud.
	Banks et al. 2016	344 mgmt researchers & 126 PhD students: US	1% of researchers self-reported fraud. 7% of PhD students reported witnessing fraud.
Plagiarism	Honig & Bedi 2012	Reading of 279 AOM conference papers: INT	35% of papers had some plagiarism.
Self-plagiarism	Bedeian et al. 2010	438 mgmt faculty, 104 colleges: US	85% reported knowing colleagues who had self-plagiarised.
P-hacking	Hoover & Hopp 2017	1215 mgmt faculty: INT	19.9% of editors (39 respondents) sometimes, often or very often encountered data deleted unjustifiably; 9.1% of reviewers (69 respondents) reported same. 25% reported at least once selectively deleting or reporting data after analysis. 60% admitted knowing colleagues who had dropped data points.
	Bedeian et al. 2010	438 mgmt faculty, 104 colleges: US	
	Banks et al. 2016	344 mgmt researchers & 126 PhD students: US	13% agreed 'rounding off' was appropriate. 50% said they had selected hypotheses depending on significance. 21% approved of excluding data after viewing the effect on significance tests.
HARKing	Banks et al. 2016	344 mgmt researchers & 126 PhD students: US	25% of researchers agreed HARKing was appropriate and 50% reported doing so. 58% of PhD students had observed HARKing.
	Bedeian et al. 2010	438 mgmt faculty, 104 colleges: US	90% reported HARKing.

Key: AOM = Academy of Management; INT = International; MGMT = management; QRP = Questionable Research Practices

Table 2: Reported Frequencies of Fraud and Questionable Research Practices Across Disciplines

QRP	Sources	Method, Data, Location (Survey unless specified otherwise)	Results
General	Necker 2014 Cossette 2004 Kalichman & Friedman 1992	631 economists: Europe 134 academic administrative staff: Canada 549 biomedical trainees: US	94% reported engaging in at least one QRP. 56% reported witnessing misconduct. 36% reported observing some form of scientific misconduct.
Data Fraud/ Data falsification	Fraser et al. 2018 Williams & Roberts 2016 Swazey et al. 1993 Ranstam et al. 2009 Kalichman & Friedman 1992 Titus et al. 2008 Fanelli 2009 Martinson et al. 2005	494 ecologists; 313 evolutionary biologists: INT 215 researchers: UK 2000 PhD students and 2000 faculty: US 166 biostatisticians: US 549 biomedical trainees: US 212 National Institute of Health researchers: US Review of 21 surveys, with 18 included in meta-analysis: INT 1768 scientists: US	4.5% of ecologists and 2% of evolutionary biologists admitted filling in missing data points without identifying those data as simulated. 17.9% reported having entirely invented data. 10% knew of people committing fraud. 51% were aware of fraud by others in the prior decade. 15% were willing to select, omit or fabricate data to publish a paper or secure a research grant. 8.7% had observed (or had direct evidence of) fabrication, falsification or plagiarism. 1-2% of scientists had ‘fabricated, falsified or modified’ data or results at least once. 0.3% reported they had falsified or ‘cooked’ data.
Plagiarism	Williams & Roberts 2016 Pupovac & Fanelli 2015	215 researchers: UK Meta-analysis of surveys: INT	13.6% self-reported engaging in plagiarism. 30% reported plagiarism by colleagues.
Self-plagiarism	Williams & Roberts 2016 Necker 2014 Martinson et al. 2005	215 researchers: UK 631 economists: Europe 1768 scientists: US	36% self-reported self-plagiarising. 24% reported they had self-plagiarised. 4.7% reported they had self-plagiarised.

P-hacking	Fraser et al. 2018	494 ecologists; 313 evolutionary biologists: INT	27.3% of ecologists and 17.5% of evolutionary biologists admitted 'rounding off' results of statistical tests.
	Agnoli et al. 2017	277 psychologists: Italy	47.9% admitted not reporting all of a study's measures; 22.2% admitted to 'rounding off.'
	Tijdink et al. 2016	535 biomedical scientists: Europe	25% reported selectively deleting or reporting data after analysis, at least once. 60% reported knowing colleagues who dropped data points.
	Eastwood et al.1996	331 postdoctoral fellows: U	27% reported willingness to select data to 'improve' results.
	John et al. 2012	2155 psychologists: US	63.4% failed to report all dependent measures; 55.9% collected more data after seeing if results were significant; 27.7% failed to report all conditions; 22% rounded off *p* values; 45.8% selectively reported studies that 'worked'; 38.2% excluded data after assessing the impact of doing so; 15.3% reported dropping observations or data points.
	Martinson et al. 2005	1768 scientists & 126 PhD students: US	15.3% reported dropping observations or data points.
HARKing	Fraser et al. 2018	494 ecologists; 313 evolutionary biologists: INT	48.5% of ecologists and 54.2% of evolutionary biologists admitted reporting unexpected findings as if they had been expected from start.
	Agnoli et al. 2017	277 psychologists: Italy	37.4% admitted to reporting an unexpected finding as having been predicted from the start.
	Necker 2014	631 economists: Europe	79% reported HARKing.
	John et al. 2012	2155 psychologists: US	27% reported unexpected findings as if they had been predicted from the start.
	Kerr 1998	156 behavioural scientists: U	30% reported they knew colleagues who engaged in HARKing.
	Tijnik et al. 2016	535 biomedical scientists: Europe	63% reported HARKing once; 39% did so more than once.

Key: INT = International; QRP = Questionable Research Practices; U = Undeterminable

Table 3: Retractions in Business and Management

Total	Time from publication to retraction (years)	Total citations	Scimago quartile	JIF for retracted papers
131	<1: 44 2: 14 3: 17 4: 18 5: 8 6: 2 7: 4 8: 3 9: 3 10: 3 >10: 15	0-19: 68 20-39: 22 40-59: 23 60-79: 6 80-99: 5 100-149: 3 150-199: 1 200-249: 1 >250: 2	N: 6 Q1: 85 Q2: 34 Q3: 5 Q4: 1	N: 39 0-0.99: 20 1.0-1.99: 17 2.0-2.99: 24 3.0-3.99: 25 4.0-4.99: 2 >5.00: 4
	131	131	131	131

Key: JIF = Journal Impact Factor; N = no published journal impact factor, or not listed by Scimago

Table 4: Reasons for Retraction

Reason	No.
Data fraud	51
Self-plagiarism	23
Plagiarism	16
Data analysis errors	16
Dispute over authorship	11
Inappropriate manipulation of citations	11
Reviewers with conflicts of interest	9
Data reporting/presentation irregularities	1
Data gathering ethics	2
Administrative error	1
Incorrect conclusion	1
Unclassified	12
Total	154