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EDITORIAL

How to minimize research misconduct? Priorities for academics in nursing

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The stakes of research are high – findings can transform careers, be broadcast worldwide in a day, and make or sometimes break individual and institutional reputations. Indeed, what is research misconduct and what should those involved in research in nursing do about it?

What does research misconduct look like?

Research misconduct is defined differently historically. In North America, misconduct was confined narrowly to fabrication, falsification, and plagiarism of research (Chevassus-au-Louis, 2019). This misconduct is best understood as fraud.

While ‘fraud’ sounds extreme, numerous instances of researchers manipulating results have been reported in the past 60 years. This ranges from deliberately withholding parts of datasets from analysis, or engaging in the beautification of data, graphs or diagrams by generating data that neatly fits to the agenda of the researcher (Chevassus-au-Louis, 2019).

In Europe, however, definitions of misconduct are broader – extending across behaviours that reduce public trust in research and researchers (Chevassus-au-Louis, 2019). This includes tasks associated with authorship that until the turn of the millennium were routinely common, such as employing third parties to ghost write research papers on behalf of named authors or including authors who had made no or limited contributions to papers (Clark et al., 2015). Crucially, this misconduct extends to a wide range of behaviours collectively termed ‘*questionable research practices*’ (Chevassus-au-Louis, 2019) which encompass a range of techniques to manipulate aspects of research and its reporting (Table 1): from misrepresenting methods or results

to the spinning findings to increase perceived impact (Boutron & Ravaud, 2018). Even deliberately withholding negative research findings from publication constitutes a questionable research practice (Boutron & Ravaud, 2018).

What is the incidence of research misconduct?

It's challenging to determine how common research misconduct is due to the subtleties and stakes involved - there are clear disincentives for researchers and their institutions from reporting cases. Yet, there are concerning trends and consensus that the prevalence of research misconduct is rising (Boutron & Ravaud, 2018; Chevassus-au-Louis, 2019)

Since 2009, the number of papers retracted by journals has increased 10-fold (Brainard, 2018) - with around 60% retractions being related to fraud or questionable research practices (Brainard, 2018). A quarter of the psychology researchers sampled in a large anonymous survey in 2012 reported 'occasionally' engaging in questionable research practices (John, Loewenstein, & Prelec, 2012). A similar prevalence was identified by the editor of *Cell Biology*, who for 11 years screened all papers submitted to the journal – one quarter of these papers indicated manipulation of results and 1% had manipulated diagrams. (Chevassus-au-Louis, 2019). Importantly, these instances need not signal the intention of the researcher(s) to deliberately engage in misconduct (Brainard, 2018). Yet, even if the conservative 1% prevalence of fraud is extrapolated globally (Ware & Mabe, 2015), this equates to 1-1.6 million published papers with fraudulent results.

Growing misconduct, growing problem?

Further, the causes commonly cited as contributing to misconduct are influential and increasing. An ongoing and rising scarcity of permanent academic jobs generates growing pressures for researchers to stand out in very competitive academic job markets via publishing work that can attract citations and garner precious peer and media attention (Thompson & Clark, 2018). Institutions also commend their researchers' for attaining high positive media profile because this helps maintain revenue streams accruing from strong performance in international university reputational rankings. Finally, profit-oriented publishers concerned with retaining and raising the impact factors of journals and attaining high media profile for their priority journals, are eager to publish potentially influential content.

Reducing research misconduct in nursing

It is tempting to reassure ourselves that nursing has and is immune to research misconduct. The prevalence of misconduct does vary by discipline (Chevassus-au-Louis, 2019). However, while nursing's academic departments do not have the same job scarcity experienced by other disciplines, there are ongoing demands in nursing for researchers to further broader institutional agenda, push out ever more research papers, and attain ever more grants (Chevassus-au-Louis, 2019). Questionable research practices are not influenced by type of research, method or design employed (Gerrits et al., 2019) - suggesting nursing and health services research may be as prone as other disciplines. Indeed, a systematic assessment of 116 health services research

journal publications from 2016 identified that approximately 69% of papers contained inadequate data to justify policy and practice implications and 46% of papers reported findings which did not reflect the data presented (Gerrits et al., 2019).

Anecdotally, many of us have likely heard of colleagues speculate suspiciously that the findings of particular researchers' work over their entire career have been consistently affirmative often in the absence of both subsequent corroboration or publication of study protocols and datasets. How then can we “maintain the bar of...integrity in a system that constantly pushes us to breach it?” (Chevassus-au-Louis, 2019, page 71)

Publish study protocols

The publication of study protocols prior to data collection and analysis is a safeguard against the accidental or deliberate deviations linked to misconduct. The publication of study protocols, viewed as a normal practice rather than an additional requirement, ensures that study designs are implemented as planned, including: adequate sample sizes being recruited and stated hypotheses being only those subsequently tested (Ohtake & Childs, 2014). Usefully, these protocols can also provide more details for future research of study methodology than word limits allow in most journals.

Researchers should routinely publish protocols prior to undertaking studies.

Deposit data using FIND principles

The deposit of research data, adequately anonymized, is a key stage of the research lifecycle (Dijkers, 2019). Data deposit—where researchers make their datasets

available to others in repositories—should be guided by the FAIR principles, that is, that data are: **F**indable, **A**ccessible, **I**nteroperable and **R**eusable (Wilkinson et al., 2016). Data deposit allows for research verification and replication. Researchers should deposit their study data using FAIR principles: institutions should encourage and reward researchers for doing so.

Support post-publication peer review

Peer review need not end upon acceptance and publication of a paper in a peer-reviewed journal – but can also encompass commentary, appraisal and questions after publication (Hunter, 2012). Platforms, such as PubPeer (Townsend, 2013), provide an accessible online means for researchers to post questions and feedback about any published research paper – with the opportunity for authors to respond. Post-publication peer review should be encouraged.

Avoid predatory journals

Publishers of predatory journals have proliferated over the last decade, especially in nursing. Not to be confused with open access journals, the primary rationale of such journals is to generate profit over maintain research quality. Predatory journals are characterized by poor quality peer review and lack of oversight from editorial board (Watson, 2019)—and are thus less likely to monitor submitted or published papers for research misconduct. Due to such risks, researchers in all disciplines should not publish their work in predatory journals.

Culture, Values and Mentorship

Ultimately, it's people not systems who engage in research misconduct. Thus, prevention of research misconduct must address cultural dimensions.

Researchers who systematically serially engage in misconduct tend to have 'fraudogenic' characteristics, including tendencies towards: crushing person insecurity about career failure, and paradoxically, a need to demonstrate grandiosity and superiority (Kornfeld, 2012). Even though such individuals know and may even often themselves invoke the ideals conventionally associated with sound research, these become eclipsed during misconduct by an underlying craving for success and kudos from more senior colleagues (Clark & Sousa, 2018). Ultimately, nothing can replace the integrity and wisdom of the individual researcher (Thompson & Clark, 2018), Accordingly, developing, preserving and expressing the personal values associated with quality research are vital for all at every stages of their research career.

Academic workplace cultures in nursing which prioritize celebrating the success of individual researcher achievements based on affirmative findings are primed for research misconduct (Clark et al., 2015). Workplace strategies to prevent misconduct should encourage and support all researchers, from postgraduate students to the most senior academics, to explore their personal emotions, fears and insecurities around career success and failures- and support them explore and navigate reconciling these with broader research ideals around rigor and conduct. Effective mentorship over the career trajectory offers both mentees and mentors opportunities to share and explore these inevitable tensions between personal vested career interests and research ideals (Clark et al., 2015).

We all have a duty to maintain, support, and esteem sound research over seemingly successful research or researchers. The integrity of research in nursing and its researchers remains dependent on this. It has a vital part to play in minimizing research misconduct.

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Table 1: Common questionable research practices (Boutron & Ravaud, 2018)

Questionable research practice	Example Misrepresentation
Misreporting of methods	Randomization or blinding processes Adherence to reporting guidelines
Misreporting outcomes and analysis	Selective reporting of particular data / themes P-hacking Withholding of negative or non-pattern fitting results
Misreporting results and figures	Selective reporting of odds ratios over risk ratios Doctoring of images
Misinterpretation	Discussion and recommendations do not adequately reflect the data Confusing measures of effect with measures of likelihood of results
Spin	Deliberate use of language to exaggerate effects, impact or study quality