Reviewer's report

Title: Misconduct in research: A descriptive survey of attitudes, perceptions and associated factors in a developing country

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Reviewer: Daniele Fanelli

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My recommendation: major revision.

The paper presents results of a survey about scientific misconduct in Nigeria. The work could represent a significant contribution to evidence around the state of these issues in developing countries, but in its present form it does not provide sufficient information and argumentation.

Here below, I detail these limitations by referring to the questions.

1. Is the question posed by the authors well defined?

Yes. Although, as a minor observation, I think that the vision that the start of the Introduction conveys about developed countries is far too optimistic. I would say that these "are starting to" ... or "attempting to" protect the credibility of research

Moreover, different countries have different structures and initiatives in place. For most of these, it is still unclear whether they are anything other than formal, and whether they have any beneficial effects at all.

2. Are the methods appropriate and well described?

No. The authors refer to a companion paper, which reported another part of the same survey. I could suppose that many details might have been provided in the cited study, but I would repeat them in this study, too, for the benefits of readers. Examples of important details would include: the title and/or characteristic (topic) of the conference, details on how the questionnaire was handed out, and retrieved (drop box?, taken back by hand?), etc.

3. Are the data sound?

Yes(?) I have no reason to doubt that the data presented is genuine, although I have noted some peculiarities, which suggest that the sample and results of this study are rather unusual, if compared to other studies.

For example, Table II shows that plagiarism and data falsification are perceived to be more common than the falsification of a resume, falsification of a reference list, or disagreements about authorship. This is in stark contrast with the majority of surveys done to date, which generally show such questionable research
practices to be more common than FFP (and it would be logical to believe so).

I don’t doubt the data itself, but this would suggest that an important variable is skewing the results. It could be the particular population at this conference, or it could be something in the procedure, including the fact that these respondents had already been "stimulated" with questions about misconduct not reported here.

As suggested above, it is crucial that authors provide as many details on the methods as possible.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?

I am not aware of specific standards of data deposition, but the presentation of data seems sufficient for this kind of study.

5. Are the discussion and conclusions well balanced and adequately supported by the data?

No. In the first paragraph of the discussion, the authors seem to acknowledge somewhat the deviant nature of some of their results, but go little in the way of discussing these discrepancies. They cite one old survey, ignoring the many others that have been done.

I hate to have to suggest a citation to my own work, but all means and purposes such comparisons need it. The authors should start by comparing their results to the general patterns that emerged in my systematic review (which is quite relevant also for the methodological issues in interpreting these results, Fanelli D (2009) How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data. PLoS ONE 4(5): e5738. doi:10.1371/journal.pone.0005738) and perhaps include later surveys that were not included there.

The second paragraph in the discussion is rather unclear. It proposes as alternatives two sentences that seem to express the same idea: that misconduct is higher in this study because the country in question has no structure/activities to prevent misconduct.

A significant part of the discussion is dedicated to discussing solutions to the problem of misconduct in their country. I find this rather unnecessary, and beyond the scope of the study. This is an empirical study, and the discussion should be dedicated to evaluating the validity of the evidence and its implications. What the authors believe to be the best solutions might be mentioned in one paragraph, but should eventually be elaborated in a separate paper.

6. Are limitations of the work clearly stated?

No. As stated above, much of the discussion is spent on proposing solutions, yet only one short paragraph is dedicated to explicitly discussing the study’s limitations.

And the (few) limitations mentioned are far from negligible. In particular, the
authors point out that their definition of misconduct is broader than that of ORI. This is a crucial limitation, and the obvious first explanation for the discrepancies observed between this survey and others. The aforementioned meta-analysis provided direct evidence that the particular wording of questions, how generically the behaviours are described, and other methodological factors make a huge difference on the outcome.

A very important point, largely overlooked by the authors, concerns the results presented in Table IV, which show no association between prevalence and environment. The authors have no clear explanation for this strange result, even though it follows quite logically from the fact that they had a broad definition. As shown in the table, almost all cases fall into the “Present” column, which, given the very broad definition of “scientific misconduct”, is unsurprising. With such huge imbalance of cases, statistical associations between variables would be almost impossible to find in the first place.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

No. As mentioned above, they make little mention of previous work, both in laying down the background to their work and, perhaps even more crucially, in discussing the differences and limitations of their work.

8. Do the title and abstract accurately convey what has been found?

Yes, although the conclusion section of the Abstract could perhaps avoid jumping to statements about what needs to be done, unless such statements clearly follow from the survey. And it is not obvious that they do.

9. Is the writing acceptable?

No, not entirely. The paper reads relatively well, but there are occasional linguistic flaws. For example, in the abstract, “Over 88% of researchers were concerned about the perceived amount of misconduct prevalent”; or “Majority (84.8%)” instead of “The majority” on page 6; or “any statistical significant relationship” instead of “statistically significant” on page 8; etc. The lack of clarity noted above in at least one passage might also be due to language, so I suggest the authors get a mother tongue colleague to review the final text.

Yours faithfully,

Daniele Fanelli