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Scientists Behaving Badly

Brian C. Martinson, Melissa S. Anderson, and Raymond de Vries recently published an article in *Nature* (435:737-738, 2005) entitled "Scientists Behaving Badly." One of the oft-cited statements in this article is that "Overall, 33% of the respondents said that they had engaged in at least one of the top ten behaviours during the previous three years." What were these egregious bad behaviors?

The highest percentage reported (15.5%) was for "Changing the design, methodology or results of a study in response to pressure from a funding source." There is a great difference between changing the design and methodology of a study and changing the results of a study. Which segment of the statement was guiding the responses? Funding sources such as the National Institutes of Health, the Food and Drug Administration, the U.S. Department of Agriculture, and the Environmental Protection Agency often insist on use of particular methods and experimental designs. Is acquiescence to scientific criticism a sign of bad behavior? I wonder if the Minnesota authors spelled behaviour with a "u" in the initial manuscript?

The second-highest percentage (12.5%) under "Top Ten Behaviours" was for "Overlooking others' use of flawed data or questionable interpretation of data." We have no context for the actions of others. Are these coauthors, or others working in independent laboratories? Differences in opinion, that is questionable interpretation of data, may well fall within acceptable limits of scientific conduct.

The third-highest percentage (7.6%) concerned "Circumventing certain minor aspects of human-subject requirements." There are no well-defined boundaries in the continuum from exempt to expedited to full review of a protocol for an Institutional Review Board (IRB). A definition of "minor aspects" may be viewed quite differently by an investigator and the head of the IRB when it comes to survey studies and noninvasive procedures. There are also ambiguities on what constitutes "generalizable research."

The fourth-highest percentage (6.0%) pertained to "Failing to present data that contradict one's own previous research." Again, we have insufficient context to provide a reliable response. In exploratory or discovery research, in contrast to studies for regulatory agencies, there is often a trail of contradictory leads, and an investigator chooses to blaze one trail based upon reproducible novel results.

The data presented by Martinson et al. look very much like several attitudinal surveys that place the suspicion of scientific wrongdoing at some value greater than 25%. The authors seem to have invented moral criteria for their questionnaire that are, at best, unclear. Lacking access to the questionnaire and its explanatory preface, it is not possible to assess the likely role that moral reasoning exercised in influencing the responses. The underlying theme of morality is to avoid causing harm, recognizing that different individuals may weight harms differently with respect to their extent and intensity, and undesirability. Persons of good will may also disagree over the scope of morality. The admonitions "do not neglect your duty" and "promote good" are not the same as "avoid harm." The late K. Danner Clouser, philosopher in the Penn State Department of Humanities, observed, "Moral reasoning does not necessarily yield a unique, one-and-only moral solution. It may lead to a number of equally moral solutions." He went on to caution "Beware of slogans as your principle of action. They will almost always mislead you--at least if you take them literally--they never work in difficult situations. They work only in obvious situations where you really know what to do independently of the slogan itself." I am encouraged that Martinson et al. confirm prior estimates that falsification or "cooking" research data is relatively rare (0.3%).

S. Gaylen Bradley

College of Medicine

Penn State University, Hershey