Research misconducts, Facts, figures and approach to minimization

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joint meeting of BMJ and the Committee on Publication Ethics (COPE) reaffirmed definition of research misconduct as “Behavior by a researcher, intentional or not, that falls short of good ethical and scientific standards.
Research management within integrity framework

[Diagram showing categories such as Data Sharing & Archive, Data Backup & Security, Data Management Planning, University and Funder policy, Content of Data Management Plans, Ethical and Legal Considerations, Organisation and Documentation, Data Security, Data Backup, To share or not to share, Deposit your data, Data Management Planning Checklist.]
Why Does It Happen?

- Poor supervision
- Too much work and Academic pressure
- Lack of training
- Lack of interest
- Incentives for enrolling, financial gain
- Fame and fortune
- Prove a held theory
- Cut corners
- “sloppy” science,
- inability to determine right from wrong.
1. William T. Summerlin (1970s) faked results of skin transplants on mice with a black felt-tip pen

2. (2005-06) Dr. Woo Suk Hwang of South Korea was found guilty of research misconduct

3. (2006) Jon Sudbø falsified data in clinical research and reported funding from a non-existent grant

www.ovpr.uga.edu/rcr/ppt/RCR-1-Research-Misconduct.ppt
Misconduct Modalities

1. Irresponsible research practices includes:

A. fabrication (making up results),
B. falsification (manipulating processes and results)
C. plagiarism
2. Questionable research practices include

A. publishing pieces of research more than once,
B. failing to declare conflicts of interest,
C. excluding outlying data without disclosure (selective reporting), including on a paper an author who has contributed little or nothing, and many other things.
Researchers should report to the appropriate authorities any suspected research misconduct, including fabrication, falsification or plagiarism, and other irresponsible research practices that undermine the trustworthiness of research, such as carelessness, improperly listing authors, failing to report conflicting data, or the use of misleading analytical methods.”
Objectives

1. To highlight some facts and figures about research misconduct from different national settings.
Objectives

2. To identify some effective minimization strategies.
Methodology

Systematically revising literature, through formulating search question and web search strategy on research misconduct at different search engines for the incidence report along the last 10 years.

According to a 2008 Gallup poll sent to 2,296 researchers receiving NIH grants.

**TYPE OF SUSPECTED MISCONDUCT**
- 35% Plagiarism
- 61% Fabrication or falsification
- 4% Other

**WAS THE MISCONDUCT REPORTED?**
- 35% Yes, reported by someone else
- 26% Yes, reported by survey respondent
- 34% No, not reported
- 4% Other
Who commits scientific misconduct?

- 16% Graduate student
- 21% Senior PI
- 17% Asst. professor or scientist
- 26% Postdoctoral fellow
- 21% Other

Rank of researcher suspected of fraud

<table>
<thead>
<tr>
<th>Research misconduct (in descending order of seriousness)</th>
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</thead>
<tbody>
<tr>
<td>Fabrication: Invention of data or cases</td>
</tr>
<tr>
<td>Falsification: Wilful distortion of data</td>
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<tr>
<td>Plagiarism: Copying of ideas, data, or words without attribution</td>
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<tr>
<td>Failing to get consent from an ethics committee for research</td>
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<td>Not admitting that some data are missing</td>
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<tr>
<td>Ignoring outliers without declaring it</td>
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<tr>
<td>Not including data on side effects in a clinical trial</td>
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<tr>
<td>Conducting research in humans without informed consent or without justifying why consent was not obtained to an ethics committee</td>
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<tr>
<td>Publication of <em>post-hoc</em> analyses without declaration that they were <em>post hoc</em></td>
</tr>
<tr>
<td>Gift authorship</td>
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<tr>
<td>Not attributing other authors</td>
</tr>
<tr>
<td>Redundant publication</td>
</tr>
<tr>
<td>Not disclosing a conflict of interest</td>
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<tr>
<td>Not attempting to publish completed research</td>
</tr>
<tr>
<td>Failure to do an adequate search of existing research before beginning new research</td>
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</tbody>
</table>

*Taken from Ref. 16: Evans S. How Common is it? Royal College of Physicians of Edinburgh. Joint Consensus Conference on Misconduct in Biomedical Research. Suppl. 7 2000;(30)1*
### Questionable Research Practices

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

<table>
<thead>
<tr>
<th>Top ten behaviours</th>
<th>All</th>
<th>Mid-career</th>
<th>Early-career</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Falsifying or ‘cooking’ research data</td>
<td>0.3</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>2. Ignoring major aspects of human-subject requirements</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>3. Not properly disclosing involvement in firms whose products are based on one’s own research</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>4. Relationships with students, research subjects or clients that may be interpreted as questionable</td>
<td>1.4</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>5. Using another’s ideas without obtaining permission or giving due credit</td>
<td>1.4</td>
<td>1.7</td>
<td>1.0</td>
</tr>
<tr>
<td>6. Unauthorized use of confidential information in connection with one’s own research</td>
<td>1.7</td>
<td>2.4</td>
<td>0.8 ***</td>
</tr>
<tr>
<td>7. Failing to present data that contradict one’s own previous research</td>
<td>6.0</td>
<td>6.5</td>
<td>5.3</td>
</tr>
<tr>
<td>8. Circumventing certain minor aspects of human-subject requirements</td>
<td>7.6</td>
<td>9.0</td>
<td>6.0 **</td>
</tr>
<tr>
<td>9. Overlooking others’ use of flawed data or questionable interpretation of data</td>
<td>12.5</td>
<td>12.2</td>
<td>12.8</td>
</tr>
<tr>
<td>10. Changing the design, methodology or results of a study in response to pressure from a funding source</td>
<td>15.5</td>
<td>20.6</td>
<td>9.5 ***</td>
</tr>
</tbody>
</table>

### Other behaviours

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>All</th>
<th>Mid-career</th>
<th>Early-career</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Publishing the same data or results in two or more publications</td>
<td>4.7</td>
<td>5.9</td>
<td>3.4 **</td>
</tr>
<tr>
<td>12. Inappropriately assigning authorship credit</td>
<td>10.0</td>
<td>12.3</td>
<td>7.4 ***</td>
</tr>
<tr>
<td>13. Withholding details of methodology or results in papers or proposals</td>
<td>10.8</td>
<td>12.4</td>
<td>8.9 **</td>
</tr>
<tr>
<td>14. Using inadequate or inappropriate research designs</td>
<td>13.5</td>
<td>14.6</td>
<td>12.2</td>
</tr>
<tr>
<td>15. Dropping observations or data points from analyses based on a gut feeling that they were inaccurate</td>
<td>15.3</td>
<td>14.3</td>
<td>16.5</td>
</tr>
<tr>
<td>16. Inadequate record keeping related to research projects</td>
<td>27.5</td>
<td>27.7</td>
<td>27.3</td>
</tr>
</tbody>
</table>

Note: significance of $\chi^2$ tests of differences between mid- and early-career scientists are noted by ** ($P < 0.01$) and *** ($P < 0.001$).
Prevalence of RM

A. Surveyed 4,298 researchers, 2,212 responded (51%), primarily biomedical:

B. 8.7% observed or had direct evidence of misconduct over the previous 3 years

C. 60% fabrication or falsification

D. 36% plagiarism

E. 37% of incidents were not reported Rank of those suspected Professor or senior scientist:

F. 22% Associate professor

G. 14% Assistant professor

H. 17% Graduate student.

Prevalence of RM:

Office of Research Integrity (ORI) 2006:

111 institutions reported a total of 151 allegations of misconduct:
69 allegations of falsification
53 of fabrication
29 of plagiarism

2007: ORI opened 14 new cases, 39 remained open, 28 closed ~33% of ORI cases find misconduct

( Guterman, 2006 – Chronicle of Higher Education )
C. the US found an average of about 10 cases of RM/year; i.e., about 1 case per year for every 100,000 researchers. Actual rate of research misconduct could be as low as 1 in 100,000 or as high as 1 in 100. (Steneck, 2000; Steneck, 2006)
Prevalence of RM:

D. Prevalence of RM... Most common actions 2/3 rds. were debarred from federal funding for minimum of 3 years to lifetime

(Guterman, 2006 – Chronicle of Higher Education)
Conclusion

misconduct is an alarming and growing up phenomena, it occurs

1. intentionally or

2. UN intentionally

3. unlimited negative effect can be produced through.
Recommendations

Many how to stop RM strategies can be adopted to prevent and minimize:

1. Promoting culture of integrity,
2. Prevention through training,
3. Developing Policies and guidelines,
• preliminary assessment,
• correction,
• Inquiry,
• investigation,
• punishment,
• ethical standards need to be made clear so that researchers can determine whether their work breaches certain codes.
• alleviation of pressure on researchers,
• greater control of research sponsored by outside organizations.
• investigation into research irregularities must be fair, prompt, transparent, and allow for retractions to be made promptly once evidence of misconduct has been confirmed.
• Educating on what constitutes research misconduct, and the seriousness of its repercussions.

• Educating potential researchers at an early stage (e.g. at medical school) on the mechanics of research ethics is essential to finding a solution to this problem and ensuring careers are constructed on honesty and integrity.
references


