Randomised Response as a Method to study Research Misbehavior
-
 a pilot study

GOWRI GOPALAKRISHNA, PhD (Epidemiology);
Amsterdam University Medical Centre; The Netherlands

World Conference on Research Integrity; Hong Kong, China
5 June 2019
The Dutch National Survey on Research Integrity

www.nsri2020.nl
Unique Features

- **First quantitative, web-based, nation-wide study** in The Netherlands

- Use of **randomized response methodology**

- **Missingness by design** = random selection of explanatory variables per respondent

  >> keep response time short >> better response rate

Main Goal:

**solid evidence based estimates that are disciplinary field (DF) specific on RM & their associated explanatory variables**
What & Why RR

- Around since 1950s
- Used extensively in sensitive areas: social security fraud, doping in sport
- Creates probabilistic than direct association
- Respondents feel more trusting hence elicits more honest answers
Pilot Study on the RR Method

- **AIM:**

  feasibility study
test understanding & trustworthiness in an academic setting
Part 1:
- 6 yes/no questions on RM
  - e.g. Have you, in the last three years, fabricated data in your research?

Part 2:
- 6 Evaluation questions
- Open ended fields

Web based; 15 mins total

10,000 Belgian researchers from WoS

e.g. Have you, in the last three years, fabricated data in your research?

Clarity of instructions

Trustworthiness

METHOD
How it works

Probabilities are fixed i.e. :

>> Always a probability YES & NO stop with the SAME symbol

Would this lead to confusion /lack of clarity?
2 conditions tested

Condition A: Symbols independent

Condition B: Symbols dependent
Prelim Results: main findings

>> whether symbols always different or the same did not improve feeling of trustworthiness or understanding

Trustworthiness:
Mean: Group A: 3.13 vs Group B: 2.95; 95% CI: -0.02 - 0.39; p =0.08

Clarity:
T- test: no significant difference btw conditions p value =1
However...

- Condition A significantly more dropout (30.1%) than Condition B (7.5%); p-value = 0.005

  >> implies that maybe symbols being the same led to more drop outs
Qualitative results confirmed this

Same symbols more confusing

“Why I was presented with 2 similar images... as if the answer did not matter”

“...not very clear to me if the same symbol appears ...how useful information can be extracted..”

“I still don't understand how the "same figure" answers work”
Trustworthiness: respondents need/desire/want to understand the “how” & “why”

“Not clear why randomised method was chosen”

“I didn't understand ..the RR method. Neither why ...two circles for the Yes and No”

“I wonder how you can then obtain useful data?”

“I did understand how to follow the procedure, but have not got a clue how it actually works”
Take home message:

- Symbols always being different may improve clarity and potentially help with drop out rate
- Include rational and simplified explanation of the RR would be helpful
- Consider cognitive interviewing within Dutch sample for final survey
The National Survey on Research Integrity (NSRI)

www.nsri2020.nl

Lex Bouter, Jelte Wicherts, Gerben ter Riet, Maarten Cruyff

ZonMw subsidery of the Dutch Government
Back up
As of 13 May 2019

<table>
<thead>
<tr>
<th>As of 13 May 2019</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitational e-mails sent</td>
<td>10,484</td>
</tr>
<tr>
<td>Valid emails addresses</td>
<td>9,369</td>
</tr>
<tr>
<td>Links to survey opened</td>
<td>435</td>
</tr>
<tr>
<td>Participants that completed survey</td>
<td>297</td>
</tr>
<tr>
<td>No. that dropped out half way</td>
<td>138</td>
</tr>
</tbody>
</table>

Response Rate of 3.2%

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>M/F</td>
<td>190/101</td>
</tr>
<tr>
<td>Disciplinary fields:</td>
<td></td>
</tr>
<tr>
<td>Biomedical</td>
<td>81</td>
</tr>
<tr>
<td>Humanities</td>
<td>55</td>
</tr>
<tr>
<td>Engineering</td>
<td>79</td>
</tr>
<tr>
<td>Social Sci.</td>
<td>81</td>
</tr>
<tr>
<td>Academic rank:</td>
<td></td>
</tr>
<tr>
<td>PhD</td>
<td>47</td>
</tr>
<tr>
<td>Postdoc</td>
<td>75</td>
</tr>
<tr>
<td>Assoc. Prof</td>
<td>52</td>
</tr>
<tr>
<td>Full Prof</td>
<td>80</td>
</tr>
<tr>
<td>Others</td>
<td>33</td>
</tr>
</tbody>
</table>
“We have to remember that what we observe is not nature itself but nature exposed to our method of questioning”

Werner Heisenberg
Nobel prize winner for Quantum Mechanics
How it works
What & Why

- Valid evidence based estimates that are disciplinary field (DF) specific in Netherlands and elsewhere missing

- Objectives
  a. Valid DF specific estimates of DRP & associated explanatory variables
  b. Generate a good understanding of the role of different stakeholders

>> co-create actionable stakeholder oriented plans
>> three year time frame to achieve this
Terminology

- DRP = Major & minor misbehaviors

FFP to subtle trespasses of ethical and methodological standards (=QRP)