Testing an Active Intervention to Reduce QRPs.

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Research Objective:

➢ Investigate the effect of an active "consistency" intervention on researcher's attitudes towards QRPs.

➢ Intervention consisted of a brief writing task.

Hypotheses:

➢ Participants in intervention condition will find QRPs less ethically defensible and will express less willingness to engage in them.

➢ Based on previous findings, effect will be more pronounced on less experienced and female researchers.

Basis for Hypothesis

1. Previous findings on passive interventions showed the consistency intervention most efficacious.*

2. Psychological studies showing that priming participants with reminders of their own moral commitments and identity motivates better behavior. (e.g. Shu et al., 2012; Aquino et al. 2002, 2009, and others)

*Bruton, S.V., Sacco, D.F, & Brown, M. (in prep).

Sample:

201 participants based on power analysis (Cohen's d=0.4, β=0.80); 121 NIH/NSF-funded researchers, 80 UMMC active researchers.

Pre-registered OSF:
https://osf.io/uspek/?view_only=9ef02e39d8324b70bcd57073a589f526

Consistency Condition:

Over the past few years, scientists have become increasingly aware of how various ethically questionable research practices can lead to poor science and reduce the ability of scientific research to improve human understanding and well-being. Please begin by spending 3 – 5 minutes writing (in the box below) about how you attempt to model research integrity in your own work and with those you mentor, and how this commitment is consistent with your core ethical standards.

Control Condition:

Research misconduct, standardly defined, consists of falsification, fabrication and plagiarism (FFP). It can lead to poor science and reduce the ability of scientific research to improve human understanding and well-being. Please begin by spending 3 - 5 minutes writing (in the box below) about why falsification, fabrication and plagiarism are ethically objectionable.

QRPs, Ambiguously Unethical (AUs)

1. To enhance chances of publication, violating the ideal of "replace, reduce, refine" regarding the use of research animals.

2. Adding additional research participants because the results collected thus far are not yet statistically significant.

3. Stopping collecting data earlier than planned because the hypothesized result already had been attained.

4. Rounding off a p value simply to make results seem more significant, such as by reporting a p value of .044 to be p = .04.

5. Deciding whether to include or exclude data after looking at the impact of doing so on the results.

6. Failing to report all of a study's outcome measures.

AU QRPs cont.

7. Selectively discussing only studies that supported the hypothesized result(s).

8. Reporting an unexpected result as having been hypothesized from the start.

9. Drawing strong inferences from statistically significant but underpowered results.

10. Selective reporting of subgroups, outcomes, and time points.

11. Deliberately delaying reporting results in order to publish findings in a higher impact journal.

12. Re-use of one's own previously published ideas or words without citation, such as parts of a literature review section, introduction or methodology, but without re-using data, results, or analysis.

13. Publishing results of a single study as several articles simply to increase the number of publications derived from the research (the so-called "salami slicing" problem).

14. Changing the design, methodology or results of a study to please a sponsor.

15. Acknowledging another's technical assistance in publication without that person's permission.

To what extent is this behavior ethically defensible?

Completely Indefensible	Moderately Indefensible	Somewhat Indefensible	Neither Defensible nor Indefensible	Somewhat Defensible	Moderately Defensible	Completely Defensible
1	2	3	4	5	6	7

To what extent would you be willing to engage in this behavior?

Completely Unwilling to Engage in this Behavior	Moderately Unwilling to Engage in this Behavior	Somewhat Unwilling to Engage in this Behavior	Neither Willing nor Unwilling to Engage in this Behavior	Somewhat Willing to Engage in this Behavior	Moderately Willing to Engage in this Behavior	Completely Willing to Engage in this Behavior
1	2	3	4	5	6	7

Defensibility

➢ Men found QRPs marginally more defensible.
- Men (M=2.98, SD=0.83); Women (M=2.93, SD=0.87). $F(1, 187)=3.40$, $p=0.067$, $\eta^2=0.018$.

➢ Effects were further qualified by a marginal Gender × Years interaction,
- $F(1, 187)=3.23$, $p=0.074$, $\eta^2=0.017$.

➢ Men's increasing years in the field reduces their endorsement of QRPs, albeit non-significantly.
- $r(111)=-0.109$, $p=0.252$.

➢ Women's increasing years in the field increases their endorsement, also non-significantly.
- $r(84)=0.109$, $p=0.320$.

Willingness

➢ A significant main effect of gender indicated that men were more willing to engage in QRPs than were women.
- Men (M=2.63, SD=0.97); Women (M=2.78, SD=0.93). $F_{(1, 187)}=4.73$, p=0.031, $\eta^2=0.025$.

➢ Men's increasing years in the field reduces their willingness to engage in QRPs, albeit non-significantly. $r_{(110)}=-0.151$, p=0.113.

Impact

➢ No main effect or interactions emerged for impact, Fs<1.82, ps>0.179.

Rationalization

➢ A significant main effect of condition emerged, such that participants in the consistency bias condition rationalized QRPs more than those in the control condition.

- Consistency (M=2.69, SD=1.56); Control (M=2.36, SD=1.30), $F_{(1, 187)}=6.64$, p=0.011, $\eta^2=0.034$.

➢ Men rationalized QRPs less than women.

- Men (M=2.45, SD=1.35) Women (M=2.63, SD=1.55), $F_{(1, 187)}=5.49$, p=0.020, $\eta^2=0.029$.

➢ Men's increasing years in the field reduces their rationalization of QRPs. $r_{(109)}=-0.323$, p<0.001.

➢ Increasing years in the consistency bias condition reduces rationalization of QRPs, $r_{(96)}=-0.269$, p=0.007. No correlation emerged for the control condition, $r_{(97)}=-0.037$, p=0.713.

Risk

➤ A significant main effect of gender indicated men found QRPs riskier than did women.

- Men;(M=5.67, SD=1.25) Women (M=5.53, SD=1.52), $F(1, 187)=5.25$, $p=0.023$, $\eta^2=0.027$.

➤ In the consistency bias condition, men perceived more risk in QRPs. (M=5.73, SD=1.08) than did women (M=5.13, SD=1.67).

- $t(75.47)=2.07$, $p=0.042$.
- No effect emerged for participants in the control condition, $t(101)=-1.64$, $p=0.104$.

➤ Decomposition of this interaction indicated that increasing years in the field reduced women's perceived risk of QRPs.

- $r(84)=-0.350$, $p<0.001$.

➤ No effect emerged for men, $r(111)=-0.016$, $p=0.863$. No other interactions emerged, $Fs<0.46$, $ps>0.503$.

Takeaways:

➤ Consistency intervention increased rationalization, suggesting moral licensing/moral distancing.

➤ Confirmation of earlier findings that greater experience for men, regardless of condition, reduces perceived defensibility and willingness.

➤ After coding, intervention shown negatively impactful for those mindful of harm, again, possibly reflecting moral licensing/moral distancing.

➤ Overall, narratives suggest scientists take research integrity very seriously, contrary to the "reproducibility crisis" narrative.