

Summary results fabrication

consent

Project title: Validating statistical methods to detect (potential) data fabrication.

This study investigates faked research results, as they are usually reported in research papers (e.g., statistical test results). We focus on studying whether faked data can be detected with statistical methods and how valid these methods are in detecting (potentially) problematic data (e.g., the power and the false positive rate). The goal is to become better informed about the validity of these methods and whether these methods are valuable in practice. This study has been approved by the Tilburg University Psychological Ethics Committee.

To be able to study the detection of faked data, we request the participant to fake research results. Participation takes approximately 40 minutes and can be stopped at any time without explanation. If you agree to start the survey, you will have one week to complete it if you want to resume at another time.

Your contact information is only used to send an invitation e-mail and will not be connected to your responses. To ensure anonymity, we disabled the logging of your e-mail address or IP-address by Qualtrics when responding to the survey. The data from this study will be made publicly available at the Open Science Framework for as long as possible, such that other researchers can verify and reanalyze the data. Upon completion of the study, you can choose to receive an Amazon gift card (\$30) at the e-mail of your choosing. This gift card will be sent to you on the completion date of the study (estimated mid-March). The faked research results that were hardest to detect and provided an e-mail, will receive an additional \$50 gift card. After sending out the Amazon gift cards, all e-mail addresses are permanently deleted.

If you are willing to participate in this study, agree with the anonymization and storage of the data, please confirm below and continue with the survey. In case you have any remaining concerns or questions about this survey, please feel free to e-mail one of the undersigned.

Thank you,
Chris Hartgerink (c.h.j.hartgerink@tilburguniversity.edu)
Jelte Wicherts (j.m.wicherts@tilburguniversity.edu)

Marcel van Assen (m.a.l.m.vanassen@tilburguniversity.edu)

- ☐ I have read and understood the description and consent to participate in this study and agree with the outlined anonymization procedure and data storage, knowing that I can stop my participation at any time.

temp_01

In this survey, we request you to fake research results for a set of four anchoring studies (Jacowitz & Kahneman, 1995). The anchoring effect pertains to the effect where a response to a question is dependent on the anchor provided within this question (e.g., "There are less than [500 or 1,000] countries. How many countries are there?").

Below, a download link is included for the template file in which you have to fill in your faked research results for the first anchoring study on the distance from San Francisco to New York. We specifically request you to fake means and standard deviations across conditions and gender. You only have to fill in the highlighted yellow cells, after which the template automatically provides you with the test statistics that would be the result of the faked data. These are displayed when all means and standard deviations are filled in. How you decide to fake the results that you fill in to the template is up to you.

The expectations the faked results are to confirm are:

1. There is a main effect of anchor condition.
2. There is no main effect of gender.
3. There is no interaction effect between gender and condition.

conf_01 Please double check whether the fabricated data confirm to the three expectations outlined above.

- ☐ No, the fabricated data do not fulfill all three expectations
- ☐ Yes, the fabricated data fulfill all three expectations

res_01 Copy and paste the contents of the yellow cells into the textbox below. Direct copy-pasting is sufficient and no adjustments are allowed.

temp_02 In this survey, we request you to fake research results for a set of four anchoring studies (Jacowitz & Kahneman, 1995). The anchoring effect pertains to the effect where a response to a question is dependent on the anchor provided within this question (e.g., "There are less than [500 or 1,000] countries. How many countries are there?"). Below, a download link is included for the template file in which you have to fill in your faked research results for the second anchoring study on the population of Chicago. We specifically request you to fake means and standard deviations across conditions and gender. You only have to fill in the highlighted yellow cells, after which the template automatically provides you with the test statistics that would be the result of the faked data. These are displayed when all means and standard deviations are filled in. How you decide to fake the results that you fill in to the template is up to you. The expectations the faked results are to confirm are: 1. There is a main effect of anchor condition. 2. There is no main effect of gender. 3. There is no interaction effect between gender and condition.

conf_02 Please double check whether the fabricated data confirm to the three expectations outlined above.

- ☐ No, the fabricated data do not fulfill all three expectations
- ☐ Yes, the fabricated data fulfill all three expectations

res_02 Copy and paste the contents of the yellow cells into the textbox below. Direct copy-pasting is sufficient and no adjustments are allowed.

temp_03 In this survey, we request you to fake research results for a set of four anchoring studies (Jacowitz & Kahneman, 1995). The anchoring effect pertains to the effect where a response to a question is dependent on the anchor provided within this question (e.g., "There are less than [500 or 1,000] countries. How many countries are there?"). Below, a download link is included for the template file in which you have to fill in your faked research results for the third anchoring study on the height of Mount Everest. We specifically request you to fake means and standard deviations across conditions and gender. You only have to fill in the highlighted yellow cells, after which the template automatically provides you with the test statistics that would be the result of the faked data. These are displayed when all means and standard deviations are filled in. How you decide to fake the results that you fill in to the template is up to you. The expectations the faked results are to confirm are: 1. There is a main effect of anchor condition. 2. There is no main effect of gender. 3. There is no interaction effect between gender and condition.

conf_03 Please double check whether the fabricated data confirm to the three expectations outlined above.

- ☐ No, the fabricated data do not fulfill all three expectations
- ☐ Yes, the fabricated data fulfill all three expectations

res_03 Copy and paste the contents of the yellow cells into the textbox below. Direct copy-pasting is sufficient and no adjustments are allowed.

temp_04 In this survey, we request you to fake research results for a set of four anchoring studies (Jacowitz & Kahneman, 1995). The anchoring effect pertains to the effect where a response to a question is dependent on the anchor provided within this question (e.g., "There are less than [500 or 1,000] countries. How many countries are there?"). Below, a download link is included for the template file in which you have to fill in your faked research results for the fourth anchoring study on the number of babies born in the United States. We specifically request you to fake means and standard deviations across conditions and gender. You only have to fill in the highlighted yellow cells, after which the template automatically provides you with the test statistics that would be the result of the faked data. These are displayed when all means and standard deviations are filled in. How you decide to fake the results that you fill in to the template is up to you. The expectations the faked results are to confirm are: 1. There is a main effect of anchor condition. 2. There is no main effect of gender. 3. There is no interaction effect between gender and condition.

conf_04 Please double check whether the fabricated data confirm to the three expectations outlined above.

- ☐ No, the fabricated data do not fulfill all three expectations
- ☐ Yes, the fabricated data fulfill all three expectations

res_04 Copy and paste the contents of the yellow cells into the textbox below. Direct copy-pasting is sufficient and no adjustments are allowed.

deb_intro In order to further the understanding how researchers might fake research results, we would like to ask you a few questions on your statistical knowledge and how you faked the research results for the four anchoring studies.

deb_01 Have you ever conducted an anchoring study yourself?

- ☐ Yes
- ☐ No

deb_02 How would you qualify your current knowledge of statistical methods?

- ☐ Extremely poor
- ☐
- ☐
- ☐ Reasonable
- ☐
- ☐
- ☐ Excellent

deb_03 Which statistical analysis programs do you frequently use (multiple answers possible; frequent is at least once a week)?

- ☐ SPSS
- ☐ R
- ☐ Stata
- ☐ SAS
- ☐ Matlab
- ☐ Python
- ☐ Other

deb_04 Please describe freely how you fabricated the research results for the four anchoring studies. This includes anything that comes to mind and can be as detailed as you like.

deb_05 Did you simulate data for fabricating the results of at least one of the anchoring studies?

- ☐ Yes
- ☐ No

deb_06 Did you fabricate an entire dataset for at least one of the anchoring studies?

- ☐ Yes
- ☐ No

deb_07 Did you use trial-and-error in fabricating data to achieve the wanted results?

- ☐ Yes
- ☐ No

deb_email Thank you very much for participating in our study. If you would like to receive an Amazon gift card worth \$50, please enter an email to which we can send this gift card. This can be any email address you like. Note that this will also be the email the bonus prize will be sent to if your data is in the top three of hardest to detect as fabricated (prize: \$50 Amazon gift card).

deb_outro As a final reminder, we would like to note that fabricating data was only allowed within this experiment and should not be taken as an invitation to fabricate research results elsewhere. Data fabrication is a serious form of scientific misconduct and is widely and explicitly condemned by professional organizations, institutions, and funding agencies alike.

If there are any remaining questions about this study, feel free to email Chris Hartgerink (c.h.j.hartgerink@tilburguniversity.edu)