

Part 4.1 Answers

1. A promising drug to slow the progression of Alzheimer's was just unveiled

Causal claim: new drug slows progression of Alzheimer's by 30%

1. Who was the experiment conducted on?
856 patients with early Alzheimer's
2. What is the explanatory variable?
Amount of drug given
3. What is the treatment?
If people were given the drug or not
4. What is the response variable?
Amount of reduction in Alzheimer's symptoms
5. How were the participants put into groups?
Randomly
6. Was there a control group?
Yes
7. Was a placebo used?
Yes
8. Was blinding used?
Yes – double blinding
9. Are there any ethical considerations that need to be made?
Is giving someone who has Alzheimer's a drug that doesn't do anything ethical? In order to test if the drug is effective it must be done.

2. Blue light from phone screens accelerates blindness, study finds

Causal claim: looking at your smart phone accelerates blindness

1. Who was the experiment conducted on?
Not a who in this case, but a what. It was conducted on the cells from the eye in lab conditions. There is more information on this here:
<https://www.statschat.org.nz/2018/08/13/smartphone-blues/>
2. What is the explanatory variable?
Level of exposure to blue light
3. What is the treatment?
Exposure to blue light or not
4. What is the response variable?
The number of cells that died
5. How were the participants put into groups?
Doesn't say
6. Was there a control group?
Doesn't say
7. Was a placebo used?
Doesn't say
8. Was blinding used?
Doesn't say
9. Are there any ethical considerations that need to be made?
Testing treatments on humans that is likely to make them go blind is completely unethical. This is why the experiment was conducted on cells.

3. Phones ring alarm bells

Causal claim: radiation from mobile phones causes cancer

1. Who was the experiment conducted on?
Rats and mice
2. What is the explanatory variable?
Amount of radiation the rats and mice were exposed to
3. What is the treatment?
Rats and mice were exposed to a "lifetimes" worth of radiation
4. What is the response variable?
If cancer is found in the rats or mice
5. How were the participants put into groups?
Doesn't say
6. Was there a control group?
Doesn't say
7. Was a placebo used?
Doesn't say
8. Was blinding used?
Doesn't say
9. Are there any ethical considerations that need to be made?
Deliberately causing cancer in humans would be unethical, therefore the trial can't be conducted on humans, so rats and mice are the next best thing

More Notes:

A response to this article was published in the Guardian. [Read it here.](#)

4. Late-night phone use is linked to poor sleep and moodiness

Causal claim: Using a phone at night causes depression, bipolar disorder and neuroticism.

1. Who was the experiment conducted on?
91,000 people 37 to 73 (but it wasn't an experiment)
2. What is the explanatory variable?
Should have been if you use your phone at night, however it was actually how active you were in the night based on your Fitbit activity.
3. What is the treatment?
There wasn't one...
4. What is the response variable?
The proportion that were suffering from bipolar disorder or depression
5. How were the participants put into groups?
They weren't...
6. Was there a control group?
Nope.
7. Was a placebo used?
Nope.
8. Was blinding used?
Nope
9. Are there any ethical considerations that need to be made?
*Running an experiment where you could cause people to suffer from depression or bipolar disorder is not really okay. This is why it was **an observational study**.*

Read more on this here: <https://www.statschat.org.nz/2018/05/25/tweet-dreams/>