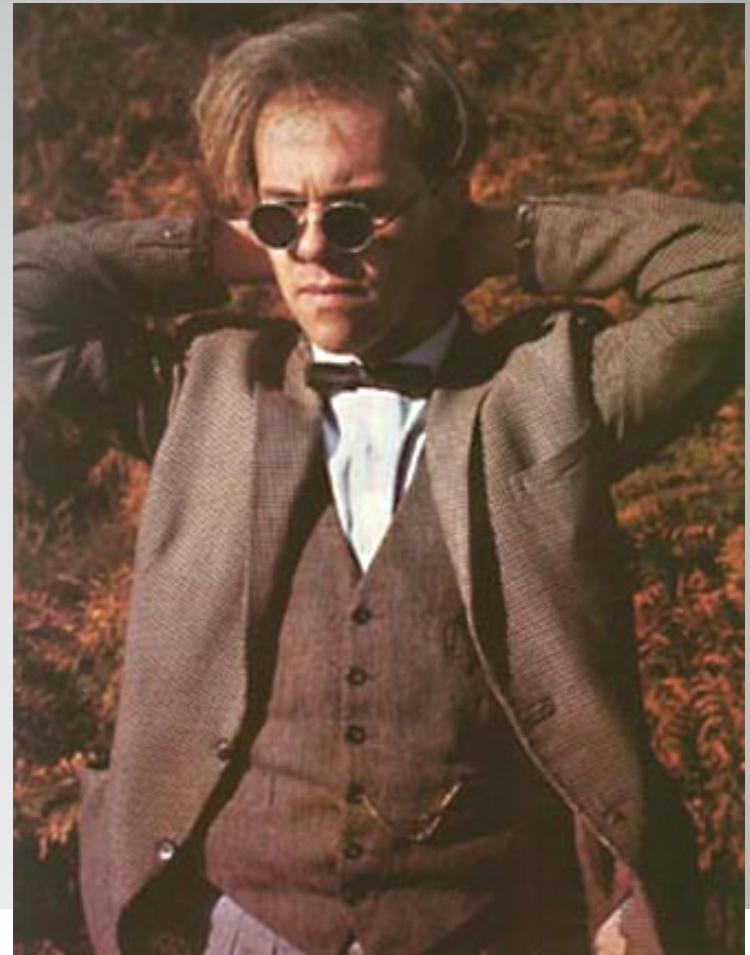




Chapter 2, Research Methods in Psychology

I. Basic Concepts of Research

- Psych uses the **scientific method**
- A. Empirical Evidence and Operational Definitions
 - Evidence based on observation of public phenomena
 - Operational definition: a definition based on the procedures use to measure scientific phenomenon



I. Basic Concepts of Research cont.



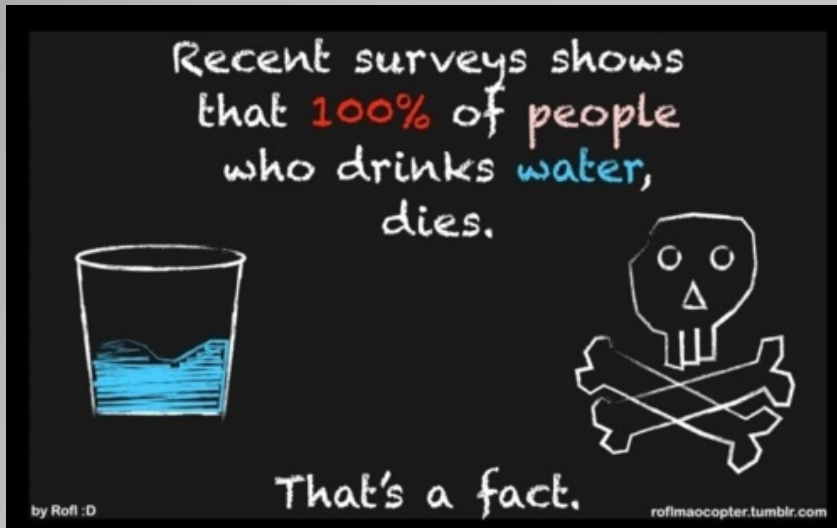
- B. Theories and Hypotheses
 - Tentative explanations of facts and relationships
 - A prediction based on a theory to be tested
- C. Representativeness of Samples
 - A group of people that are studied to learn about the entire population
- D. Importance of Replication in Research
 - Studies must be repeated to prove their worth

II. Research Methods

- A. Descriptive Studies
 - Describe how people live
- 1. Survey Method
 - Most widely used
 - Find people's opinions
- 2. Naturalistic Observation
 - Simply watch and describe what goes on
 - Jane Goodall watching apes
- 3. Clinical Method
 - Observe people while they receive help from the mental health profession



A. Descriptive Studies cont.

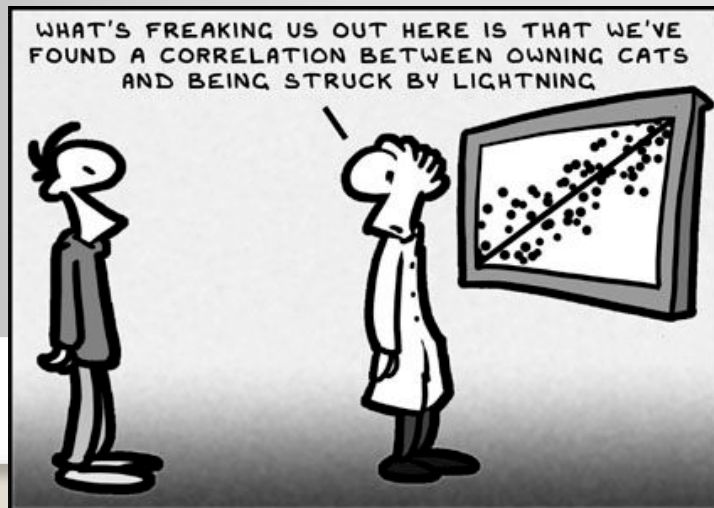


- 4. Correlational Studies

- Example: Rise of violence in society along with the rise of violent entertainment

- a. Correlation: Statistical Relations between Quantitative Variables

- Measures the strength of the relationship between two variables
- Doesn't always mean it is related

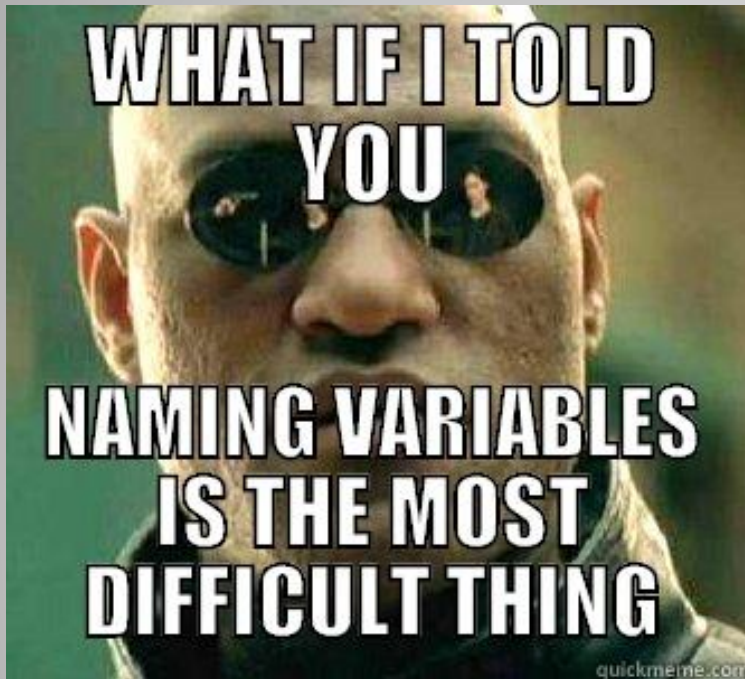


B. Formal Experiments

- Designed to show the relationship between two or more variables
 - Researchers can manipulate the independent variable
 - Ex: show one group violent films and another neutral ones, then observe their behavior
 - Studies show violent films increases aggression in boys, especially those prone to aggressiveness



B. Formal Experiments cont.



- 1. Elements and Logic of Formal Experiments
 - Independent Variable
 - Controlled by the researcher
 - Dependent Variable
 - Depends on the effects of the independent variable
 - Experimental Group
 - They receive the independent variable
 - Control Group
 - They do not receive the independent variable
 - Formal experiments must have Random Assignment
 - Experimental Control: make sure differences in an experiment can be traced only to the independent variable

B. Formal Experiments cont.

- 2. Placebo Control in Formal Experiments
 - Placebo Effect: Many people feel better in tests when they get pills that have no drugs
- 3. Blind Formal Experiments
 - An experiment where the researcher does not know which groups is the experimental group
 - Experimenter bias
 - Double blind tests: researchers and participants do not know



Dare to free yourself.

placebo
now you're in control

Finally, the world's most powerful miracle cure is available without a prescription!

The following is a patient summary of information about PLACEBO (placebic acid HCL). Read this information carefully before taking PLACEBO.

What is placebo?
PLACEBO is a powerful miracle drug which has been scientifically proven to be effective in the treatment of every physical and emotional disorder known to humans.

Is placebo the right medicine for me?
Of course it is. PLACEBO is the right medicine for everyone.

Are there any side-effects to placebo?
No. PLACEBO works perfectly every time.

How does placebo work?
To operate PLACEBO, remove a caplet from the tamper-proof bottle, place on the tongue and let dissolve slowly over a period of several minutes. PLACEBO's misty freshness will lift your spirits as super-powerful nano-medicines effectively relieve all your ailments.

Should I ask my doctor about placebo?
No. Don't mention anything to your doctor, your doctor is an idiot. The medical industry has a vested interest in keeping you ill so they can continue to prescribe more costly treatments and toxic medications. Frankly, doctors are scared shitless of the super-powerful nano-medicines in PLACEBO. The last thing they want is a pill that cures everyone because then they'd all be out of work.

How often should I take placebo?
Any time is the right time for PLACEBO!

placebo
placebic acid hydrochloride

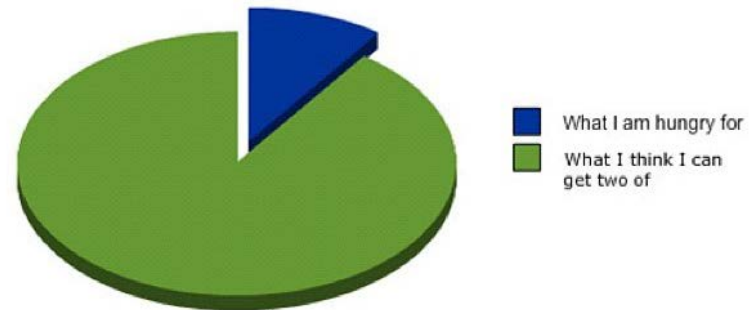
placebo
placebic acid hydrochloride

placebo
placebic acid hydrochloride

<http://trigazine.com/placebo>

- Statistical Evaluation:
- Psychologists must collect and evaluate evidence to support their hypothesis.

How I decide what to get from the Vending Machine



Latest statistics show that...



3 out of **4**
Australians
make up **75%** of the population
(Cat. no FOOL)

Describing and Interpreting Data



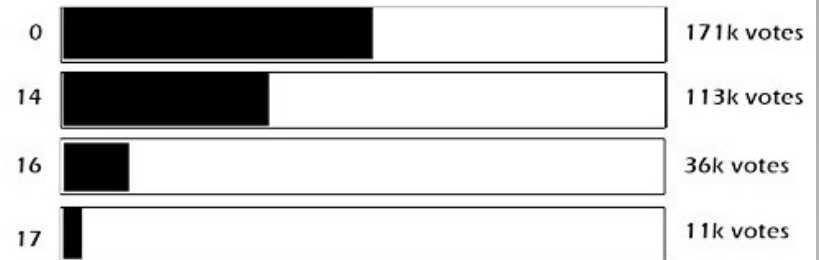
- 1. Descriptive Statistics (pg.47)
 - Summarize the results
 - Mean: the average
 - Median: the middle of a set of scores
 - Normal distribution: bell-shaped curve, scores are more evenly and closely bunched near the mean
 - Mode: the most common score
 - Standard Deviation: a measure of how spread out scores are from the mean score

C. Describing and Interpreting Data

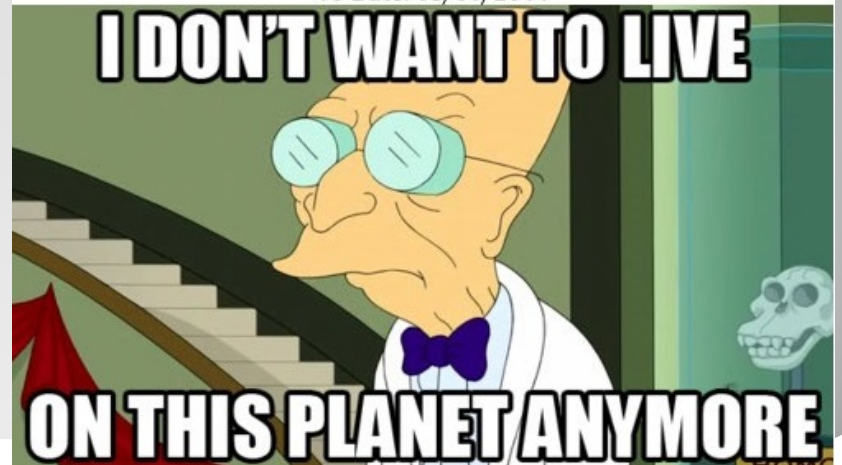
- 2. Descriptive Statistics in Everyday Life
 - Beware of stats from ads and politicians
- 3. Reaching Conclusions from Data
 - Statistical significance: a decision based on statistical calculations that a finding was unlikely to have occurred by chance

Question:

$$1+1+1+1+1+1+1+1+1-1+1+1+1+1+1x0=?$$



To Date: 03/09/2011



Remember, Correlation doesn't Imply Causation!!!

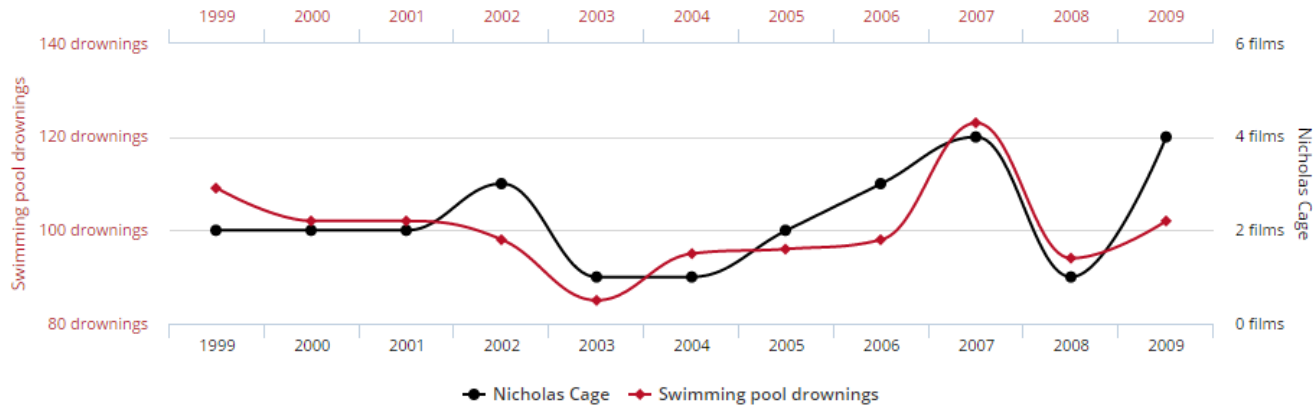
- The classic example of correlation not equaling causation can be found with ice cream and -- murder.
 - That is, the rates of violent crime and murder have been known to jump when ice cream sales do (Think Chicago and warm weather).
 - But, presumably, buying ice cream doesn't turn you into a killer (unless they're out of your favorite kind?).

WATCH OUT!!!!!!

- For Confirmation Bias
 - Meaning: Humans are evolutionarily predisposed to **see patterns**
 - We are also psychologically inclined to gather information that supports pre-existing views, a trait known as **confirmation bias**.
 - We confuse coincidence with correlation and correlation with causality.

Number of people who drowned by falling into a pool correlates with Films Nicolas Cage appeared in

Correlation: 66.6% ($r=0.666004$)



tylervigen.com



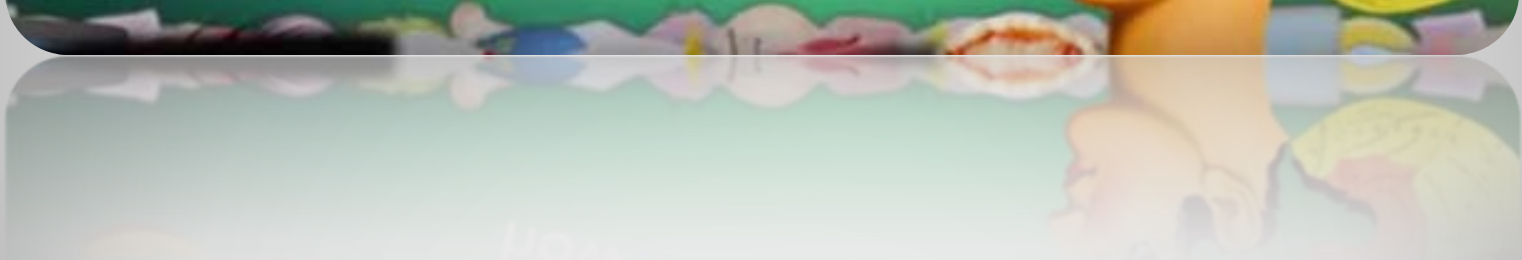
- *Coincidence:*
 - Nicolas Cage's AWFUL movies and people drowning in swimming pools both increased at the same time.
- *Correlation:*
 - Increase in Nicolas Cage's bad movies leads to an increase of drownings in pools.
- *Causation:*
 - Nicolas Cage's bad movies causes people to die in pools.

6 Bizarre Correlations | What the Stuff?!



What the STUFF?!

howstuffworks[?]



III. Ethical Principles of Research



- A. Ethics with Humans
 - 1. Don't pressure people into experiments
 - 2. Informed Consent: make sure participants fully know what is going and that they can get out
 - 3. Limit Deception to aspects that do not influence participation
 - 4. Participants have a right to know the results
 - 5. Confidentiality: don't use names

III. Ethical Principles of Research cont.



- B. Ethics with Animals
 - 1. Only do it when it is necessary to advance knowledge behavior
 - 2. Ensure good health to the animal
 - 3. Conduct humane treatment
- C. Human Diversity
 - Equal Representation in Research

Creating a survey

- With a partner you will create a Hypothesis
- Create a survey 5 to 10 questions
- Survey students in the class
- Record your results
- Write a conclusion based on results and hypothesis.

- Recap...
 - Did your hypothesis work?
 - Did you have a big enough sample?
 - Did your questions work?
 - What would you change about your survey and why?

Survey Timeline

- Monday: Have hypothesis created before you leave.
- Tuesday: Create questions and how you plan to collect data.
- Wednesday: Have survey ready to distribute. Analyze data individually for homework.
- Thursday: Write conclusion as a group and answer recap questions. Submit one survey sheet, data collection sheet, and questions by the end of the period.

What I need from you before you leave today...

1. **Sheet on top with ALL of your names on it must include:** Your hypothesis, Conclusion, and Recap Answers
2. **Next sheet:** Your data collection sheet
3. **Bottom sheet:** A sample survey that you distributed to the class.

ALL STAPLED TOGETHER